

COMMODORE User

Incorporating Vic Computing An EMAP Publication Volume 2 Issue 1 October 1984 UK Price 85p

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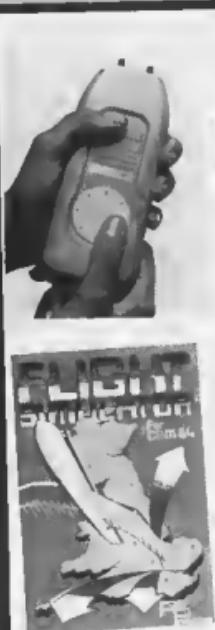
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News:

New products, new software and anything else news to Commodore users

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The Forth Dimension: Programming with a DIY language – part two

Forth aficionado Richard Hunt continues his series on the most do-it-yourself of computer languages. This month initiating conversations between the reader and the Forth system in your computer

13

Up, up and away: Flight Simulators reviewed

Flight simulation programs for the Commodore 64 are all the rage right now. This month, we cast a critical eye over some of the more popular flight packages. Will any of them turn you into a budding Zippies?

15

User Friendly Design – part one: Six rules for better programs

Chris Preston starts a new series to help you write better programs. He lays the foundations by giving a set of simple but essential rules for you to follow

Central your home with Vic and 64 – part two:

Chris Durham continues his meeting series by expanding and modifying the control unit he introduced last month. You did build it didn't you? Also included is a BASIC control program, for both Vic and 64

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Taskset in profile: The view from Bridlington

Taskset has devoted itself to producing games almost exclusively for the Commodore 64. And it's managed to gain a reputation for using the 64's graphics and sound capabilities to the full. Sohdan Rusak took the Seaside Special to Bridlington to meet the creators of Rankin, Rodney and Boro

26

Screen scene for Vic:



Vic Viewtials:

This month's offerings include a version of the classic 'Breakout' routine for screen scrolling and a hi-res plotting program.

42

Speedy disk access: The 1541 Express reviewed

The 1541 Express cartridge from Ram Electronics claims to double the speed of your rather sluggish 1541 disk drive. Kevin Sargin put the device through its paces to find out just how true those claims are

54

Adding up the Plus/4: The new Commodore Plus/4 previewed

It's now official that the new Commodore Plus/4 will be making an appearance in your High Street shops, but it's not actually launched until after this issue has gone to press. So we got Karl Dallas to acquire a pre-launch model (albeit without the ROM-based software). He fuels his opinions with some hands-on experience

56

Adventuring for regulars:

This month adventure guru John Ransley initiates a regular spot for the dedicated adventurer. Reviews of games, books, hints, opinions and more.



Fred on sound:

Synthesiser packages reviewed

Recovered from last month's introduction to synthesisers and the Commodore 64's SID chip, Fred returns to look at a range of synthesiser packages currently available on the market.

Screen scene for the Commodore 64:



Victuols for the 64:

Teaching yourself how to spell in French can be pretty boring. Here's a program that not only franchises your 64 (or your Vic) but also provides a way of testing your French spelling. For the non tagalog, there's a program to make your 64 beep whenever you hit a key.

Dolos on business: Micro Moglie reviewed



Audigenic's Moglie was originally a cartridge-based database program costing around £100. Now it's available on disk for a bargain £39.95, making it probably one of the cheapest databases around. Earl Dallas finds out how well the new version works.

Pet with more memory: A look at the new Commodore 8296

Encased by the 128K memory of the new Commodore #396 Karl Dallas went out and bought one - and was ready to corral his 64K Pet to the scrap heap. He soon found out the 128K is not all that is claimed.

Know your Rights: How to complain about duff products



So you think you know your Rights when it comes to complaining about faulty or unsatisfactory products you've bought? Commonwealth tells you simply to take back any duff hardware or software. But life and the Law are never quite as simple as that. Charles Christian explains your Rights and shows you how to complain successfully.

Book Look:

Another batch of ethical penals of computer and computing books

Tommy's Tips:

Tommy continues to burn the midnight oil, answering yet another batch of queries from distraught Vic and 64 owners.



Readers write:



Commodore Corner

Readers will remember that Commodore made a big noise about the Commodore International Computer Art Challenge it organised in April. True to form, it's just announced the winners in equally grandiose style, exhibiting the winning entries at a prestigious art gallery in London's fashionable Mayfair.

The overall winning entry came from a certain Hugh Riley, a fine arts graduate from Manchester who's work bears the cryptic title 'Louise (Mediation Failure 128)'. The image itself is equally baffling to the uninitiated. It depicts a baby's face with a fly buzzing to and fro, perching intermittently on the infant's nose - Louise, in fact, Hugh's baby son.

According to Hugh, his entry makes some statement about his current state of unemployment, a fact Commodore did not fail to mention, probably because it enhances the altruistic factor of giving him not only £1,500 of Commodore equipment but also a £5,000 endowment to enable him to study computer art at the place of his choice. "I'll probably go to America," says Hugh, completely unaffected by eager media attention.

Other winning entries were not quite so problematic; one winner in the 'dynamic' category depicted the face of E.T. emanating from a black box. Another, called 'Mr Freakenstein', showed the aforementioned tapping the keys of a Vic whilst grimacing hideously - probably a Syntax Error.

All entries were programmed without recourse to software aids, which was not Commodore's original intention. The Contest had been timed to coincide with the launch of the Tony Hart and Roy Harts drawing packages for the 64, in the hope that entrants would use them to generate their images - neither of those packages are yet available.

More competitions

Commodore has also announced that it's to sponsor the first European heat of the International Programming Competition in collaboration with Thames Polytechnic, the aforementioned event being organised by the Association of Computing Machinery. It's actually being held at Thames Polytechnic on Saturday, 30th October. And according to Commodore's press blurb, the event is "part of its com-



Life of Riley - Art Challenge winner

ment to backing British education".

The idea of the contest is for teams of up to four undergraduate or postgraduate students to solve a set of six programming problems, using either Fortran or Pascal. Simply the team that finds the solution quickest will be declared the winner.

Commodore is providing its 6000 series computers on which the brainstorming sessions will take place. Apparently, the 6000 (or Pet) series is widely used in colleges and universities in Britain. And it looks as though Commodore is phasing the market heavily due to its lack of success in ousting the BBC micro from its lofty pedestal as the 'micro for primary schools.'

New games for old Vic

In the meantime, Commodore is vigorously quashing rumours that the ageing Vic-20 is a doomed hunk of chaps, the official line being that Commodore will continue to produce Vics if the demand warrants. At present, that seems to be happening. And to reinforce that commitment, Commodore continues to launch new Vic games when almost all the independent games companies have turned their Commodore-oriented attention to the more illustrious 64.

Just announced for the expanded Vic are Rapier Punch and Starbase: the former involves knights, dungeons, dragons and treasure, whilst the latter reworks the 'aliens attack futuristic planet' theme. More down to earth (well, not quite) is Bomber Mission, a new flight game that needs 16K expansion. Looks like there's something for all tastes, especially since prices are standard at just £4.95.

SHORTS

Wafadrive Late: It now looks as though a Commodore 64 version of the Retromex Wafadrive disk storage system, mentioned last month, will not now be appearing in September as was originally intended. According to Retromex director, Peter Booth, "we're now going to be a little late for the Christmas market". A delayed version was produced, however, just to prove that no legs are being pulled. Retromex plans to include a free wordprocessing package, written by Hewson Consultants, when the device actually appears. A small selection of games should also be available on wafer. Notable interested parties include Artec, Sohak, Romik and Melbourne House.



SHORTS

Ground control: Flight simulators for the Commodore 64 seem to be all the rage at the present but software house Supersoft reckons it's smarter than the rest by producing something more extraterrestrial, a space flight simulator called Interceptor Pilot. The package includes a 48-page manual which, according to the blurb, "provides an insight into the latest technological developments including travel at the speed of light". When you've got bored with reading you can take part in simulated dogfights with alien craft. The cassette version costs £17.95, and £19.95 for disk - space travel was never cheap.

Trollie Wallie

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SHORTS

Zapping with Danger Mouse:
Fans of that intrepid cartoon rodent, Danger Mouse, will be pleased to hear that Creative Sparks is launching a Commodore 64 game called Danger Mouse in Double Trouble. That will be followed by Danger Mouse in the Black Forest Ghostrau - should that have been 'gatson'? Both games will be available on cassettes only, costing £7.99 each. But there is a bonus of some buyers of the Double Trouble game get to enter a competition. What do you win? How about a trip by Roller and helicopter to the Cognac Hall where the Danger Mouse series is filmed?

Gremlins and Presidents

The games software industry must have an unquenchable desire to provide us all with new and original games to play. The latest avenue it's exploring is politics and current affairs.

A new software house, Sheffield-based Gremlin Graphics, has been making a name for itself (notably on television programmes) by releasing a Commodore 64 game called Wanted, Money Mole, which capitalises on the (still ongoing) miners' strike.

Money, the fury little protagonist, is on a coal-smashing mission in the South Yorkshire coalfield, doing battle with flying pickets and eventually confronting "a hairy figure seated on a graphite throne". The aforementioned is called Arthur Money and must topple Arthur from his lofty position by seizing secret ballot papers - and so it goes on.

Whether that's bad taste or not depends on which side of the picket line you're standing. But Gremlin is trying to calm any race complaints by donating £5 for every game it sells to the Miners Welfare Fund, as well as a £250 lump sum donation to the same cause.

Meanwhile, a new range of Brangamines is being launched by Brighton-based Amplexon. As the name suggests, the games are de-

Elite hologram

Credit card holders will have noted the many holograms now being printed on their favourite piece of plastic. They may be fun to twiddle around but their real purpose is to put the dampers on would-be counterfeiters. Now, that idea is being taken up by the games software industry in its seemingly endless quest to zap the parasites.

Elite Systems, a newly formed software house, is planning to include a hologram sticker on insert cards for all its games. No games have actually appeared yet, but an Elite spokesman reckons three titles will appear in Autumn for the Commodore 64. One is curiously called Ekotonni Wit!, the other two are based on American TV series - there's no escaping them.

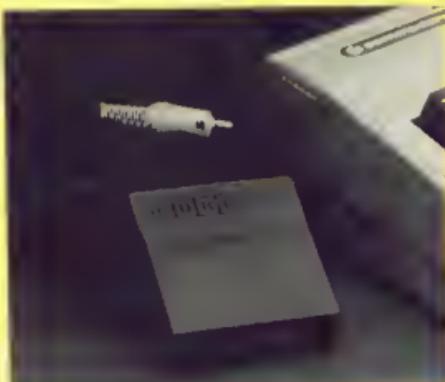
The holographic process is expensive, but Elite says its games prices will remain competitive at around £5.99. If you lose interest in the game, you can play around with a three-dimensional Elite logo. Whether the process succeeds or not, it will certainly make the games more attractive to prospective buyers, according to?



signed to demand some brain work, as according to Amplexon a Peter Wood. "The majority of games in the market don't present players with sufficient challenge to keep them coming back to replay."

Amplexon reckons it takes brain power to become President of the USA, so it's produced Electron Trail for the Commodore 64.

In "one player" mode, you campaign for the Republican party against the Democrats, rep received by the computer. The aim is to win as many States as you can by using various methods to gain support. Those include holding rallies, public debates, media campaigns and getting endorsements from movie stars. You also hold regular opinion polls to see how your party is getting on - pretty realistic eh? Presidential enquiries on 0273 608331.



Speaking up for the 64

The long-awaited Speech 64 speech synthesiser cartridge from Currah Computer Components is now available. Wary of being thought too modest, Currah describes it as "the most user-friendly and versatile speech unit available for any computer, anywhere". After that lot, the £29.95 price-tag seems quite reasonable.

Speech 64 works by using a set of allophones - the sounds that go together to make up a particular word. That means the package has an unlimited vocabulary because it builds words from its stock of component sounds. Sound is actually generated through the speaker on your TV or monitor (a DIN plug from the cartridge slots into the 64's video port).

Using the BASIC command SAY, the device will voice any text or numbers inside inverted commas, following its programmed set of pronunciation rules. But it does occasionally come unstuck - 'comb', for example, is pronounced with a 'b'. But you can type the word using conventional allophone notation to get the sound right.

Apart from the SAY command, there's KON, any key you hit is voiced (even the cursor and function keys); and KOFF, which turns the facility off. You have a choice of two voice pitches (gained by pressing either a 0 or 1 after the SAY command), and various levels of intonation. For the more advanced, the (rather small) manual gives examples of incorporating speech into Basic and machine code programs, using the cartridge's 256 allophone buffer.

And Speech 64 looks like making an impact on the games market. Since it uses none of the 64's operating system, its facilities can be incorporated easily into games. Already, Amrog's new PC Fuzz game uses it. Or maybe you just wait; that rather tunny Dalek voice to wake you up in the morning? We'll be reviewing it soon. More details on 0429 729995.

SHORTS

Funny titles Dept: Richard Shepherd Software is all set to launch a new adventure game for the Commodore 64, with the imaginative title, Upper Canzine. Without giving too much away, the game features a certain Professor Blowoutous who holds the fate of the world in his hands. Good simple fun? Late September is forecast as the launch date and the game will cost £3.99 on tape and £12.95 on disk.

SHORTS

Amending Aardt: Albert van Aardt has written to point out that the listing he sent us for his Albert's Assessment Aid program (Commodore User, July 1984) contained some inaccuracies. To make the program run as it should, substitute lines 172 and 173 with the following:
 171 FOR I = 1 TO 5000
 172 K = (K+(K'R)) - P.
 K-P TREN M = E: I = 5000
 173 NEXT

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Nut

Extending the Legend

Legend's Valhalla soared up the Commodore games charts when it finally appeared on the 64 a few months ago, finally because it had achieved cult status long ago on the Spectrum. Whether that was a mistake or a clever marketing ploy, Legend has changed tack, it's reissuing The Great Space Race, its latest offering simultaneously for Spectrum and 64.

The game is due to appear in early October (no price yet) probably heralded by a massive spend

ing spree on publicity. The game itself is rumoured to have cost £250,000 to develop. With that kind of money involved, you don't keep a low profile.

According to Legend director, John Peel, the new game uses a new operating system called Movsoft 2 which "features technical effects never seen before in home computer software". And the graphics? "We have finally achieved true solid 3-D graphics, which, under the control of a computerised 'camera director' create the most realistic and spectacular pictures ever." Modestly apart, the game looks set to bring in more money bags for Legend. We've queuing up for our review copy.

THE GREAT SPACE RACE



Cassette player convertible

Commodore users have grounds for being dissatisfied with their lot when it comes to using Commodore's own Datasette for loading and storing programs. Priced at around £40, the device is somewhat expensive; there are no real alternatives to it, and having paid your money, you can do nothing else with it. Enter the DR2301 data recorder for the Vic and 64 from Rontronics, which doubles as an ordinary cassette recorder, and costs just £34.95.

Rontronics supplies a cord which you plug into the DIN socket on the side of the device, and other end into the cassette port on your Vic or

64. The unit then takes its power from the computer and works just like the Datasette. Two differences, though: there's no recording light, and if you turn the volume up, you can hear the data loading signals - those amount to a load of nasty screeching sounds.

Our review model happily loaded even the largest 64 games programs and had no trouble with the new fast-loading systems now being introduced on games.

As a tape player and recorder, the DR2301 performs adequately. Nothing brilliant in the way of sound (there's a volume but no tone control), but what can you expect for the money? By the way, you can't play audiotapes when the device is plugged into your computer. That's a pity; music while you program might have been an attractive proposition.



No, this is not Captain Kirk's 'phaser'. It's the new RAT infra-red joystick from Cheetah Marketing, for the Commodore 64. But before you consign your manual cable-connected model to the dustbin, here's the price - £29.95. RAT uses touch-sensitive pads for controlling movement and firing. Its infra red receiver plugs into one of the joystick ports on the 64, and you can zap away quite happily from across the room - providing you can still see the screen. Two problems, though: you can't attach two RATS to the 64, neither can you use the RAT with a conventional joystick plugged into the second port.

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Forth

Now >FORGET PEEK< and redefine it so -
PEEK swap do i m. or loop :
 This has another effect. (it)
 fetches a 16-bit value - TWO bytes
 at a time, as opposed to (05) which fetches only one. What
 need was there ever for
 (LOWHID)? Can you think of a
 way to display the address
 against its contents? Answer at
 the end of this article ...

You can in fact play around with versions of (PEEK) and (DUMP) which allow you to display whatever you will. It's a good way to find out what is happening in the Forth system that's different from the Basic you already know.

Some implementations may already support (DUMP) in the form I stated earlier as my objective. Here, with comments (which may be omitted when you enter it), is my own DIY version based on that objective: it uses some words I have not explained yet. Note the re-definition (purpose-built) of (PEEK) and how it and (ASCII) are built into

```

 1 PEEK do i CR Rm. Index + 1 read, format & display byte from base
 2 ASCII do i CR Rm. Index > read & display ASCII character
 3 DUMP now i read base 10)
 4 swap do i set output lines sequentially in order?
 do i begin loop)
 5 due due i make 3 copies of index?
 6 < not < add loop increment and index them
 7 swap < i people unsigned double numbers and format
 8 due over i swap bases from sequential?
 peek word
 ascii cr
 9 < loop + increment and end loop>
 decimal decimal base 10?
 10

```

the higher level of definition. The whole code should be entered on an editing screen and (LOAD)ed.

((r)) & (d.x) are formed number output words. (dup) copies the TOS while (over)

copies the second on the stack to TOS. (space) outputs an ASCII blank, and (+loop) increments the loop by a specific quantity like BASIC STEP. The loop increment may be changed to 8 for a C-64.

Next time - all about the stack.

Answer to the problem set above:
:PEEK i+ swap do i m. or loop ;



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Review

This is your pilot speaking...

Flight Simulators for the 64

by Jim Grubbs

There is a picture that hangs in my house of a young lad about 10 years old or so. The setting appears to be a clear summer night: the boy's sights are focused on the sky as a large aircraft passes overhead. My grandmother says that it reminds her very much of my father at that age - Dad went to join the air force.

The family interest in what we now call aerospace continues with me. And with a Commodore 64 computer, you can do the next best thing to actually piloting an aircraft - complete with good sound, vision and colour effects.

Several flight simulator packages are available. Here's the results of many hours of test flying some of the best. Chris Durham has added a piece on Anirog's 737 simulator.

Solo Flight by Microprose

Solo Flight was written by Sid Meier for the Atari and adapted to the 64 by Grant Irani for Microprose Software.

One of the attractions of this package is the ability to choose from several different locales to fly in - the flat country of Kansas, the mountains of Colorado, and

the unique combination of ocean on one side and mountains on the other of coastal Washington State offer something for everyone.

Once you become an ace you can fly the mad run game that is included and put your skills to a real trial. And you can also exercise some control over the degree of difficulty by varying the weather conditions and such.

The bottom portion of the screen displays an instrument cluster not unlike those found in the cockpit of a small aircraft. The upper part of the screen is a three-dimensional view, though the view projected is somewhat different than a true 'view out of the window': it's more as if you were being followed by a television crew in a plane behind you. That's the perspective you have.

This detracts slightly from the realism of the program, but the view is fairly detailed. When you



are close to the ground, you can even see your shadow. The scenery remains in perspective as you bank and turn.

A 16-page instruction booklet is included that adequately describes the basic techniques of flying and includes maps of the airports.

In addition to flying visually, *Solo Flight* is equipped with avionics for IFR (instrument flight rules) operation. When flying IFR, the top of the screen turns

totally gray so you must navigate by instruments alone.

The instrument landing system (ILS) included is not quite as realistic as some tested, but does give you a feel for instrument-assisted flying.

After an IFR flight, a map is projected on the screen showing the aerial course you flew. That can be quite interesting, particularly when you first try it.

One of the features I found most welcome is the ability to

practice landings continually. That's the most difficult part of flying and *Solo Flight* allows you to get on top of it.

The response of *Solo Flight* to changes in joystick direction is excellent. Controls operate smoothly. It is a delight to fly this one.

At \$34.95 US, £14.95 (on both cassette and disk) in Britain,

Solo Flight is definitely good value - sure to bring you many hours of enjoyment.

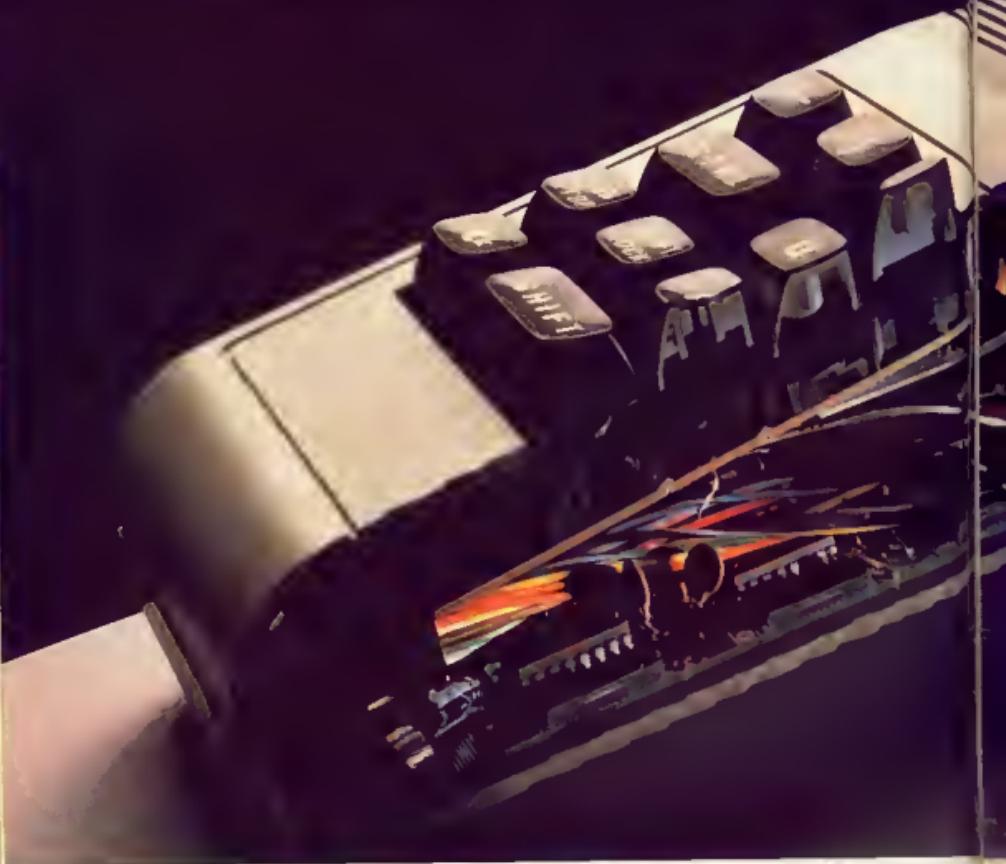
IFR by Academy Software

Academy Software invites you to put on the 'hood' and fly its IFR simulator. Written by Ron Wanntaja, a private pilot and employee of Boeing Aerospace, *IFR* is an excellent package if you are interested in instrument flying only.

Since you have no view out of the window at all, the instrument panel of *IFR* takes up the whole screen.

You begin by selecting the degree of difficulty and the amount of turbulence. An editor is also available for changing other flight conditions; a 30-page instruction manual comes with the package.

Two ILS airports are included and two non-instrument approach runways are also available.



Are you only using

To only play games on a Commodore computer is like asking Albert Einstein to work out the square root of four.

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Both programs are written in machine code and run on the Commodore 64, Amiga and Acorn Electron. Chess and Draughts are highly versatile versions of the game. Play block or white-pawn against the computer or a human.

The skill level of the computer's play can be varied widely, and moves are entered either by coordinate or cursor control. Moves can be taken back if an error has been made, and the board can be modified at any time. Games can be "saved" or "loaded", and the last game can be replayed. The computer will, if requested, suggest your moves.

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Review

Since this is strictly an IFR simulator, you may be asking, how do you land IFR at a non-ILS airport? The maps in the instructions manual provide you with the exact location of the airstrips, giving the latitude and longitude for the top and bottom and each end of the runway. Landing in this fashion is quite a challenge since you have no visual cues at all as to what is going on!

You must be sure and use the map in the instructions, or you may find yourself flying along just fins... only to find out that you are too low and come crashing into a cliff.

One of the most impressive features of IFR is difficult to describe in words because it involves the sound effects associated with the outer, middle and inner markers of the landing system. Anyone familiar with avionics (avionics electronics) will appreciate the realism of the ILS implemented in IFR.

Here again, the controls respond quite smoothly. For an IFR-only simulation, this one is another winner at \$29.95 US (we don't know of a UK source - Ed)

Flight by Angel

Let you think that the tanks have completely taken over the simulator market, Angel Productions offers Flight by C. Johnson.

At a top speed of 400 knots and the sound of a roaring jet engine, Flight is definitely in the large aircraft category! It allows you to fly by themselves eight English airports.

You navigate using a grid system that takes a bit of getting used to. But the major problem is that Flight comes with no instruction manual, only an instruction card. Complete instructions are available when you start the program, including a map showing the grid system. But it's almost a necessity to copy that map on to paper; otherwise you will find a very difficult to navigate property.

In the middle of the screen is an area where instructions appear. This simplifies your pilot duties. I'm not sure that it's very realistic however.

A window view is included. While sitting on the ground you can see the runway; but once

you're airborne the graphics subside to a green field for the ground and blue for the sky.

Operation of Flight is very smooth, and the instructions make it easy to navigate. This program reminds me of early versions of Runway 64 (that program was not included here since I wasn't able to obtain the current version). Early versions of Runway were written in BASIC and responded very slowly. Flight does not suffer those problems, but looks somewhat similar graphically.

I'm sure that the local availability of Flight will make it a popular item in Britain at £9.95, but it does lack the realism and complexity of some other offerings.

For an alternative (and rather harsher) judgement, Chris Durham comments "this was one of the first flight simulators to be released for the 64, as such it had a good chance to capture a large share of the potential pilots who owned a 64. Unfortunately, potential is about all it does have since it bears about as much resemblance to flying a plane as driving a computer."

The graphic representation of Britain is excellent and a small dot shows where you are and moves as you watch, however, that's the only movement you're likely to see in the whole program because the "view through the cockpit window" is non-existent. The instructions are also rather poor; some of the instruments are not even mentioned!

There also appear to be a couple of small 'bugs' in the program. Try as I might I cannot get the undercarriage to stay up if it goes up and down like a yo-yo seemingly at random (or rather every time I put it up it comes down of its own accord after a few seconds!) The second problem may just be me, but every time I try to land I get an "Emergency Chime Alarm". This appears to lock the controls so I can't do anything about it anyway. No matter how accurately I follow the landing instructions it gets me every time.

"After two months I still haven't landed, and thereon lies another problem - there is no 'skill' level to alter. There are eight different airports to 'fly' to, but if you choose one of the further ones you'll die of boredom before you ever get there."

"All in all I was rather disappointed in this offering; there are now better simulators on the market at lower prices."

Flight Simulator II by Sublogic

About 150 Kilometers east of my home is the University of Illinois at Champaign Urbana. A lot of really neat things have come from the U of I - including Sublogic Corporation and an amazing item called Flight Simulator II.

Sublogic's first simulator was written in 1977 for a 16K Apple computer. FS II is a much upgraded version of the original, including full colour and breathtaking three-dimensional graphics - it's very difficult to describe FS II in a few words and even more difficult to do justice to the beautiful graphics.

The first thing that catches your attention is the packaging. FS II comes complete with a pilot's operating handbook and a flight manual, and a book on flight physics and aircraft control that includes a basic flight course! Nearly 200 pages of documentation, in two books, including realistic reproductions

MicroProse Software



Review

Flight Simulator II

subLOGIC

for the
Commodore 64
Computer

of flight maps to support the 80
(!) airports programmed into the
package

When you boot the program, you find yourself sitting at the
end of the runway at Meigs field
on the shore of Lake Michigan in
downtown Chicago. Ahead are the
twin towers of the Hancock building.
As you take off, you
may select from one of nine
views or use your radar, zooming
in or out to suit your needs.

You can see the Sears Tower
and other Chicago landmarks. A
very powerful editor allows you
control over forty different flight
parameters - you can set the
levels for not one but two layers
of clouds, for instance.

I decided that it was
appropriate to turn my plane
south and head toward Willard
Field in Champaign on my test
flight. As I did, Interstate 70
appeared off to my left, south of
Kankakee, the checkerboard
pattern of Illinois corn fields
appeared.

Land marks are quite detailed,
but only available in the vicinity
of the airfields. After all, a 170K
disk can only hold so much!

A communications radio, two
navigation radios, a
transponder, and an emergency
locator transmitter are included.
So operation is quite realistic.
You must tune the receivers to
the proper frequency yourself.

When you enter the range of the
control tower a message will
appear on the top of the screen,
provided of course you have
your radio properly set!

FS II allows you to select day
night, or dusk flight, and when
you become tired of flying
normally, a World War I flight
game is included too.

Is FS II the perfect flight
simulator? I think it's as close as
I've seen. The only drawback I
found was the feel of the
controls. They didn't seem to be
slow exactly, but they did seem
to be damped, like the needle
on a meter. Incidentally, you can
select either keyboard control, or
joystick control, or a combination
of the two. You may even use
two joysticks if you have them.

At \$49.95 US and £41 (disk
only) in the UK Flight Simulator
II is in the Cadillac price
range. Without a doubt, FS II
includes Cadillac type features.
I fell in love with it!

Flight Path 737 by Anirog

This £7.95 flight simulator is
now available on tape (with
TURBO load) or disk, ensuring
little time is wasted getting
started. It also runs on Vic
(with 16K expansion) or the 64.
Initial impressions are good.



The opening music is excellent
and you get to select the skill
level from 'First Solo' to 'Test
Pilot.'

You start the actual simulation

looking at a fairly realistic
cockpit display with the runway
somewhere in front of you. I say
'somewhere' because the first
thing you have to do is line up
the aircraft on the correct
heading before you can take off.
This is fine to begin with, but
gets rather monotonous when
you have to go through the
routine every single time.

Having taken off you must
climb rapidly in order to clear
the mountains which suddenly
loom ahead - not forgetting of
course to raise the flaps and
undercarriage! Unlike the Anger
Products effort, you can see the
mountains through the
windscreen (even if they are
static!) and sometimes while
crossing the mountain range you
have to change course for the
deserted airfield.

You then start your descent,
and the simulation here is quite
good, ten miles out you get a
high/on-low/low indicator plus a
visual impression of the runway
in the distance. There is a lot to
think about since your speed
increases as you descend, the
undercarriage must be lowered
while still above 300ft and you
can't lower the flaps if you're
doing over 200 knots. Having
done everything correctly you
touch down with a whisper (or in
my case a heavy thud!) and get a
message telling you how good,
or bad, your landing was.

Obviously you are going to
make mistakes the first few times
and these are all trapped,
unfortunately all you get is a text
message on a blank screen
telling you what you did wrong,
and then you have to start all
over again from the beginning -
even if it was just that you forgot
to lower the undercarriage above
300ft. What's wrong with an
undercarriage alarm? Why not let
the plane actually crash? As it is,
the easy option of stopping the
program the minute you make
any mistake, however minor, can
get very frustrating.

Nevertheless, I kept having to
have one more try to see if I
could get it right this time, and
such addiction is what makes a
good game.

Unlike some flight simulations I
have seen on the Spectrum, this
is still not real flying, you only
have one place to go to and you
can't do anything fancy while
you are in the air. It is however a
step in the right direction.

As long as you aren't
intending to go for a private
pilot's licence, this simulation
will keep you amused for some
hours.

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Programming

User-friendly design: Six Rules for better programs

Part One of a series

by Chris Preston

This is the first article in a new series intended to help you write better programs. And when we say 'better', we don't mean Faster, or Smaller, or Containing Lots of Complicated Things that Nobody Else Understands and Neither Will I in Six Month's Time. No, this time around we want a 'good' program to be one which is a joy to use, whether you have just picked it up from the dealer or have been using it for two years.

A typical program has three sections. The first is a short initial section which carries out various things which are done once and once only - such as defining arrays and setting initial values of variables. The second part is the data entry section, where the user is expected to give the program all the information it requires. After that the program passes into the third section, processing; there all the real work is carried out.

At the end of processing the program may finish. Or it may go back for some more data entry - as in an invoicing program, where once the details of a customer's order (the data entry) has been keyed in with an invoice produced and the value of the purchase sent to the customer's file (that's the processing), the program returns to data entry for the next invoice.

As far as the user is concerned it is section 2, the data entry part, which decides whether the program is 'good' or not. He or she does not care how polished and efficient the processing section is, or what clever tricks the programmer gets up to; the user just wants to be able to enter the data quickly and easily, without having to sit with the manual at one's knees to work out which button to push next.

The trouble is that far too many programmers see the program simply in terms of the processing section.

To them data entry is an annoying prelude to the delights to come. A typical programmer is like a child gobbling down dinner as fast as possible so that it can get started on the chocolate cake.

Add to that the fact that writing a good data entry section involves

an awful lot of hard work. The net result? This all-important aspect of programming gets skimped terribly.

Remember this maxim always try to make the user's life as easy as possible. You may think a particular program of yours is easy to use, but then you would ask who wrote it? Your user may not be as good a typist as you and not able to find the X key immediately. He or she may be short-sighted and unable to distinguish easily all the text you have crammed on to the screen. The computer may be fitted under a bright fluorescent light to confuse things.

Above all, what seems obvious to you may be an impenetrable wall of incomprehension to the user.

Before looking at the requirements for a good data entry routine, there are a few requirements for screen display which are often overlooked.

1 Every screen should have a title telling the user exactly what he or she is doing



TELLING
THE USER

If the user selects an option to modify a file, the program should put a banner at the top of the screen saying "FILE UPDATE" preferably with the name of the file too, as in "ADDRESS FILE UPDATE". That way if he gets distracted by a phone call, he can come back to the machine and tell at a glance what he was doing. Don't forget that a new user may be able to find this out from the screen display without a bit of head scratching - and when users have to think, they make mistakes.

2 Choose suitable colours for the display.

Scientific tests have clearly shown that, for prolonged use, the best (which in this case translates as least strenuous) video display is probably green or amber text on a black background. Black and white is no good at all! Some computers do not give any choice, but even those with a monochrome display usually give the programmer the choice of light-on-dark text or dark-on-light text.

If you have light text on a dark ground, when the tube is poorly focused the light writing will



SUITABLE COLOURS

speak out without a dramatic effect on legibility. On the other hand, you use dark text on the bright background will spill into the letters making it impossible to read clearly. This is especially important if an ordinary TV is being used rather than a monitor, because a TV cannot produce the same quality of image.

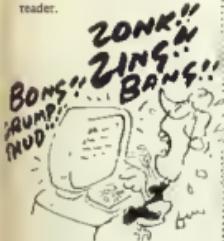
In addition, though, Vic and 80 users have the benefit of being able to show many colours on the screen. Use them by all means - you'd be daft not to take the opportunity to make the display more meaningful and more immediately comprehensible. But be careful. Unless you are an artist or an interior designer, and know all the pitfalls of putting clashing colours together, you can easily produce a technicolour nightmare which could quickly put off a user!

3 Error messages should always appear in the same place on the screen.

The best place for this is probably the bottom line of the screen. Putting the text in the same place all the time means that the user does

not have to search the screen for the error message.

In addition, the error text should be made to stand out from the screen by using reverse video or some contrasting colours. We can get away with dark-on-light here, because the message only has to be read once before (hopefully) it is removed from the screen, that is not too much of a strain on the reader.



DON'T GO OVERBOARD

Of course, where possible an error message should always be accompanied by a noise from the computer to draw the operator's attention. Suitable noises are easy to generate on the Vic and 64 (but again, please don't go overboard on these); most Pet's will respond to PRINT CHR\$(7) with a pretty little warble from an internal speaker.

4 Remove prompts from the screen once they have been obeyed.

If you display a prompt on the screen saying something like PRESS ANY KEY TO CONTINUE, perhaps while waiting for the user to put a new disk or tape in a drive, it should disappear once a key has been pressed.

This is easy enough to do by overprinting it with a string of spaces:

```
100 PRINT "LOAD A BLANK
TAPE IN THE CASSETTE
DECK"
110 PRINT "AND PRESS ANY
KEY TO CONTINUE"
120 GET AS
130 PRINT "[CUP][CUFF];
SPS:PRINT SPS
```

The string SPS is just a string full of spaces. (It saves a lot of space to say PRINT SPS every time you want to print 40 spaces rather than a PRINT command followed by quotes and 40 tape on the space bar.)

You can also print a smaller number of spaces (for blanking part of a line) by using LEFT\$(SPS,18). As well as using less memory (only nine bytes), it is also obvious when listing the program exactly how many spaces are going to be printed - it is quite difficult to count spaces in a listing! Writing programs is quite enough work without making it unnecessarily hard on yourself!

Again prompts can be made to stand out from the screen by using contrasting display modes or colours.



IT SHOULD DISAPPEAR...



FIT THE USER...

5 Make your text fit your user.

Different people wear different sized clothes; Twuggy would not feel comfortable in one of Cyril Smith's suits (especially if he was still wearing it!). If possible, then, tailor your text to your user. If the operator is an experienced computer user, you can be far more brief in your instructions ('MOUNT A BLANK CASSETTE') than you can if they have never seen one before ('PUT A BLANK CASSETTE INTO THE DRIVE, CLOSE THE DOOR, AND PRESS THE PLAY BUTTON').

More often than not, of course, the programs will be used by a range of people of varying experience. The important thing here (and it is very difficult to achieve) is to write an all purpose program - one that is sufficiently self-explanatory to be easily controlled by a first-time user, but one which a regular user does not find unusually repetitive.

A good example of how you might manage this is the WordStar word processing package. It has three 'levels' of user instructions, from one with no prompts at all to one where almost every key depression produces another menu of options which can be selected. The user picks the one he or she is happiest with. In addition it is possible to ask for 'help' on any topic relating to the use of the program, in which case text is displayed on the screen explaining the point in detail. (The subject of menus and 'help' screens will be covered in a later article in this series.)

6 USE CAPITALS.

The point here is that CAPITAL LETTERS are twice the size of lower case ones; remember that short-sighted old codger with a clapped-out video display and bright light overhead. While it may look very pretty mixing upper and lower case letters, remember that a program should be useful as well as nice to look at.

The only possible exception is the Vic-20, because the letters are so big anyway but 40 or 80 column screens should usually be left in upper case.



SHORT-SIGHTED OLD CODGER

Next issue: down to the nitty-gritty with data entry - how to do it (and how not to do it).

ANIMATION



Graphics — This program enables you to paint and draw on the screen by controlling a simulated pencil and brush which can be manoeuvred either by keyboard or joystick. This utility can be used to create and edit background pictures stored in half the normal memory space by use of innovative data compression techniques. Together with automated drawing techniques; circle, and control routines, background and tape load and save this makes the creation of an wonder possible for ALL USERS.



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Control your home with your Vic or 64

by Chris Durham

Part Two of the series

This month we continue our series on how to control your home with a few ways of getting more out of the User Port by adding another part of our system

Last month we showed you how a simple interface unit could control up to eight mains-powered devices. This month we are going to go one stage further and give control over the same eight devices – but using only half the number of lines from the User Port.

And for those who like the ideas mentioned last month, but don't want to build, we look at some of the commercial units currently available.

First, a quick overview of how the User Port works. The User Port is located at address \$8577 in the 64 memory map, 37136 in the Vic memory and it can be PEEKed and POKEd like any other location.

Those of you who have not played around with the User Port may be wondering how the Port knows whether it is being used for input or output. This aspect is controlled by a register (at address) within the computer called **Data Direction Register** which is located at memory address \$6519 on the 64, 37138 on the Vic.

There is a direct relationship between this register and the User Port; each of the eight 'bits' in the register determines whether the corresponding line in the User Port will be an input or an output. If the bit is set to 1, the line is an output and if it's 0, the line is an input.

So setting the Data Direction Register to the value 15 will set up the first four lines of the Port as outputs and the remaining four lines as inputs (Figure 1). Once this has been done it is then merely a matter of POKEing a

value into the User Port address to set the lines on or off. To get an input requires a PEEK command to read the value of the input lines.

Logical digression

In order to use the facilities of the User Port to the full it is necessary to understand how the operators **AND** and **OR** work.

Together, these allow you to set or unset individual 'bits' in an address without affecting the rest of the address. Each 'bit' in an address has a value equal to 2^n where n is the bit number (see Figure 2).

If we **OR** an address with a number, the final result sets to 1 all the bits which were 'on' in the address to start with plus those bits which make up the Oked number (see Figure 3). With the **AND** function, the result is to leave set only those bits which are common to both the address and the number (Figure 4).

If you look at the code we used last month to turn the individual lines on and off you should now be able to understand how it works. But you

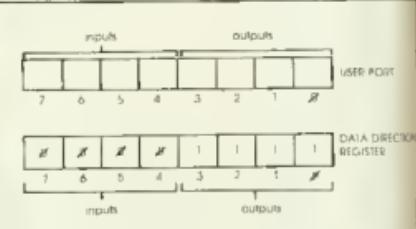


Figure 1 The Data Direction Register

may wonder why we set the line to 0 to turn a device on and 1 to turn it off, surely that's the wrong way round?

In fact the interface we built last month is designed to work on 'negative logic'. Without going into too much detail, this is done to make the circuit more efficient and fail-safe, if the line is broken or any wires touch each other the mains device switches itself off.

The Control Interface

This is the circuit that is going to do the decoding for us – and thus to allow more efficient use to be made of the User Port. It is based on a device which will decode four bits into 16 possible combinations.

If we connect this widget across the first four lines of the Port, then by POKEing any

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Projects

number between 0 and 15 we can set the relevant output on the device.

That isn't all we have to do, though; the device can only have one of its outputs on at any one time. This means that if we switch another device on, the first device promptly switches off again. What we need is some form of storage so that we alter one device at a time without affecting any others; a storage device that does this is called a latch.

Diagram 1 shows the block diagram of the circuit we will be using. Each of the two latches takes eight lines from the decoder: four to switch the latched outputs on and four to switch them off. A total of eight controlled lines are then converted to negative logic by the final buffer/drivers.

This last serves two purposes, in addition to inverting the logic state, it provides the necessary power to drive the mains controller.

In order to conserve the limited power available from the computer I have used CMOS (Complementary Metal Oxide Semiconductor) devices throughout. Unfortunately CMOS has an extremely limited power output and cannot provide sufficient current to operate the opto-isolators over a long length of cable.

The final bit of the circuit is therefore a special high-power CMOS (HCMLOS) device with all the characteristics of a CMOS device, but with power output levels equivalent to the higher power TTL (Transistor/Transistor Logic) devices. This is a new breed of integrated circuit and

128	64	32	16	8	4	2	1
2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0

Figure 2 A quick summary of the bits in a byte with their decimal equivalent

37	#	#	1	#	#	1	#	1
----	---	---	---	---	---	---	---	---

OR

12	#	#	#	#	1	1	#	#
----	---	---	---	---	---	---	---	---

=

45	#	#	1	#	1	1	#	1
----	---	---	---	---	---	---	---	---

Figure 3 An OR example

37	#	#	1	#	#	1	#	1
----	---	---	---	---	---	---	---	---

AND

12	#	#	#	#	1	1	#	#
----	---	---	---	---	---	---	---	---

=

4	#	0	#	#	#	1	#	0
---	---	---	---	---	---	---	---	---

Figure 4 ... and an AND

may not be readily available from normal suppliers. If you do have difficulty, your supplier should be able to obtain it from the address given in the parts list.

Construction details

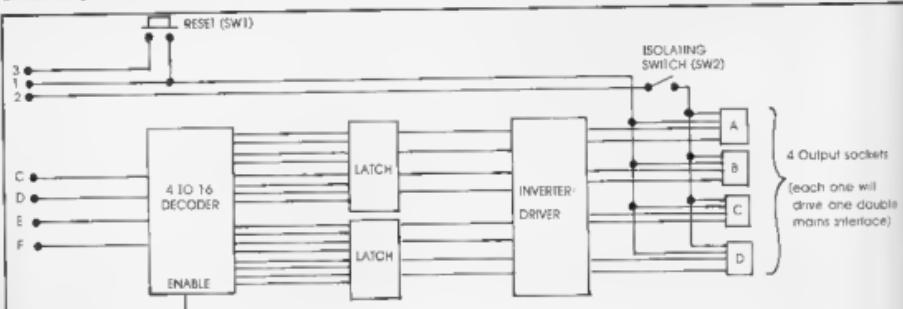
This unit requires a custom-made PCB, the layout of which is shown in Diagram 2. The component layout is shown in Diagram 3.

For this board the construction is very straightforward. First solder the wire links, connecting plugs and DIL sockets; then do the discrete components. Next, solder the two wires for the reset switch (if fitted); and then solder the first eight wires of the ribbon cable (the remaining wires will be used for the input board in the fourth part of the series). Leave at least 3in spares on the unused wires.

Finally, clean up the copper tracks with media, getting off all the excess flux; check that there are no solder bridges and that all components are correctly mounted.

Once you have done that you can solder the ribbon cable to the User Port plug as shown in Figure 5.

The last stage is fitting the ICs into the sockets. Because we are using CMOS devices it is important that you handle them with reasonable care; they are particularly sensitive to static electricity, and careless handling can damage them irreparably. The best way is to earth yourself to a water pipe (or similar) before touching the ICs. Put them carefully into the sockets, taking care not to bend any of the pins.



Into the box

The unit is now ready to mount into a suitable case - the one indicated in the parts list will allow both this board and the input board to be mounted in a single box (the input board will be mounted above this one). Having chosen your box you must now mount the output sockets and the isolating switch, as in Diagram 4.

If you have mounted more than two mains units in one box you can of course use any suitable output socket, so if you have all eight mains sockets in one unit you could use a nine way D-type socket and connect it with just one cable.

The isolating switch enables all outputs to be switched off simultaneously; it also allows the unit to be set up by the computer without any mains devices being switched on accidentally.

I have also included a 'cold start' Reset switch. Pressing this will cause the computer to reset to the initial power-on state without actually having to turn the computer off - very useful for recovering from a crash or machine-code loop, though it does reset the BASIC pointers too (thus effectively losing a BASIC program in memory). Any machine-code programs will be unaffected by a Reset and can be restarted with a SYS command.

Turning on

The unit must be plugged into the computer prior to switching on - connecting it with the power on may easily damage one of the ICs. To test the Control Board, plug it into the computer, then plug the Mains Control Unit(s) into the output sockets and also onto the mains.

Switch the computer on, switch the isolating switch on, then test each socket in turn; all mains sockets should be 'ON' now.

POKE\$6579,15 POKE\$6577,0
For the 64 Or for the Vic 20

POKE\$7138,15; POKE\$6136,0

Reset all mains sockets (which should now all be OFF). If either of these tests fails, switch off the computer immediately and check your board very carefully.

If all is well you can now type in the control program - note that there are different versions for the Vic 20 and the 64. This allows you to switch the mains devices on or off by pressing either the + or - keys followed by the

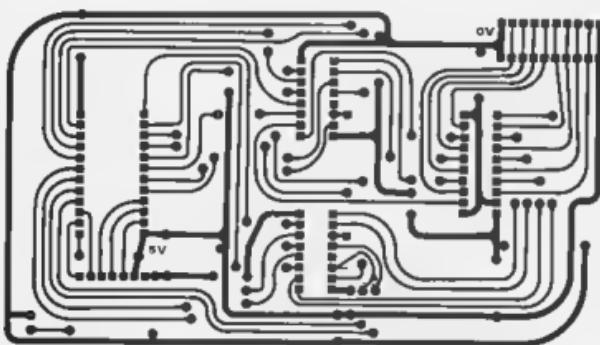


Diagram 2: Layout of the Control Interface PCB

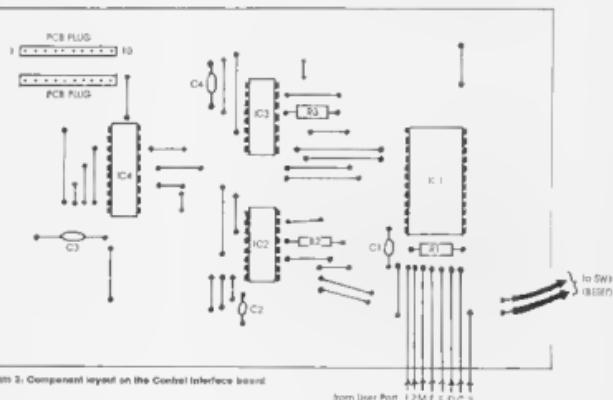


Diagram 3: Component layout on the Control Interface Board

from User Port F2M/F1 DC3

USER PORT CONNECTOR

1	2	3	4	5	6	7	8	9	10	11	12
A	B	C	D	E	F	H	J	K	L	M	N

PIN CONNECTIONS



Figure 5: Fitting the ribbon cable to the User Port

Projects

device number A screen indicator will show the state of all devices.

Once you have typed and saved the program you can complete the final test. This checks that the outputs respond correctly, pressing '+4' should turn on mains socket 4 for example, and '-4' should switch it off again. Test all sockets in turn and then in combination, if any seem fail then you have either made an error in the circuit board or in typing in the program.

Using the Control System

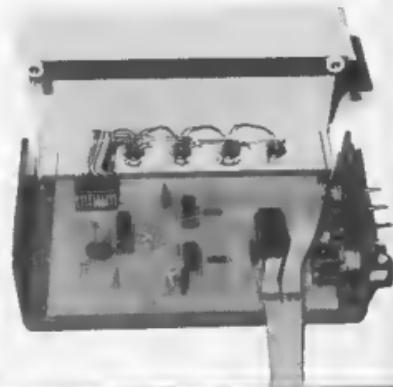
When using the control system the isolating switch should always be OFF until the program is loaded and run. This is

system while the line remains high (1).

Lines 310 and 330 show its use (it is set up by the DOR at address 86378 for the 64, 37138 for the Vic). By using similar code in your own programs you can set sockets to switch on at certain times of the day or night, switch lights on and off while you are out or turn the heating on at pre-set times.

When typing in the programs note that the standard display control codes have been expanded to meaningful strings, e.g. <CLR> = Clear screen and <CD> = Cursor Down etc. You must replace these strings by proper codes.

There will be a program at the end of the series to allow



The interior of the prototype unit showing connections to output

you to do all these things in conjunction with the input board as well. In the meantime, the only restriction is your own imagination ...

That brings us to the end of Part 2 of the series; next month I will be covering a commercial unit that allows control through the mains wiring itself and a constructional project to build a remote control system using an Ultrasonic link.

Commercial control units

For those people who would like to expand their computer to control functions but have no constructional ability and/or facilities, here are details of some of the commercial control units I have managed to find working with the Commodore range of computers.

- L.W. Staines & Co. is producing an eight-bit controller board (Interface II) which could be used for main control with suitable relays. It also has similar motor control interfaces for anyone wanting to experiment with robotics. A review unit has been promised, but had not arrived by the time this article was written - if it turns up, details will be included later in the series. Prices are from £25 and the suppliers can be contacted at Unit 2, Roding Trading Estate, London Road, Barkings Essex IG11 8ZU telephone 01-591 2900.
- VIC-REL is a cartridge unit which plugs into the User Port and will control six output and two input lines. It is limited to a maximum voltage of 24v for the output lines and you will

The completed prototype unit shown without the isolating switch. The sockets and switches to the right of the reset switch are for use with the input board)

because the computer sets up the User Port on power-up with all lines set as INPUT's and in any case the state of the devices on the control board is indeterminate when power is first applied. Once the User Port has been set up correctly and all devices switched off, you can turn the isolating switch ON.

The code needed to use the control system is all contained in the demonstration program. Lines 150 to 200 set up the control interface and lines 250 to 330 carry out the control functions. Note that one line from Port A (PA2) is being used to enable or disable the 4 to 16 decoder chip (C283 on Vic). Only when this line is set low (0) will the User Port affect the output. You can therefore use the User Port for other things without affecting the mains control

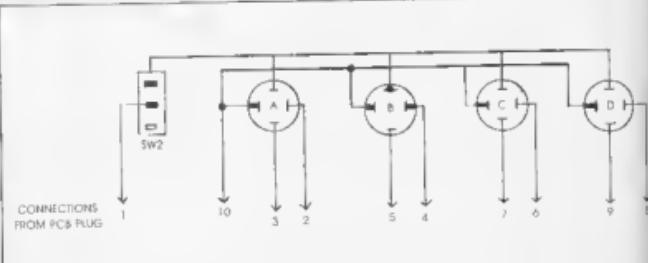


Diagram 4 Mounting the output sockets and the opto-isolating switch



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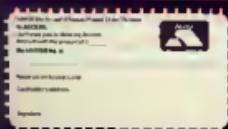
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Profile

Taskset in profile

The view from Bridlington

by Bohdan Buciak

Taskset is a relative newcomer to the make or break world of home computer games; it's been trading for little over one year. But its protagonists cut their teeth earlier than most by producing games for real arcade machines.

Now they've turned their collective attention exclusively to the Commodore 64 and have produced a string of eccentric yet original games that seem to pop up regularly in the games charts. Bohdan Buciak took the stopping train to sunny Bridlington to meet the creators of *Rankin' Rodney* and *Bozo*.



Andy Walker was born just down the road from Taskset's new premises on Bridlington High Street. He's managing director of that company, and probably falls into the 'local-boy made-good' case category, whether he likes it or not. He's now in his mid-thirties, sports a Noel Edmunds hairstyle and beard, and has done nine working as a civil servant. Not an environment conducive to pronouncing game-mania. So how did he get hooked on computer games? "I spent a considerable number of years working with computers at a government electronics centre", he declares cautiously. "That was a few years back, when microcomputers were just beginning to make their mark on the mainframe and minicomputer market."

Walker saw the potential in medias res and became fascinated by micros to the point of distraction. But his enthusiasm couldn't

persuade his superiors to send him on small systems courses to find out more about micros. Walker considered that to be somewhat shortsighted. "They didn't believe the future lay in small systems," so he built an empathy towards the Civil Service and started building his own micros.

He eventually left, having decided that he wanted to do nothing more than devote his time to writing video games. He managed to inspire another programmer and a video artist with his own brand of enthusiasm and together they set up AWL Electronics, a company whose major claim to fame was writing games like *Andromeda* and *The Pit* for the true games arcade consoles.

From arcade to home

But nothing seems to last long in the computer games industry. "The

writing was on the wall for arcades", recalls Walker. "People were ripping each other off blind, producing anything but original offerings. In any case, the growth market was in home computers you can't put a keyboard in an arcade." By that he means the sophisticated game control you get from a keyboard couldn't be incorporated into an arcade machine - keyboards are a mine too delicate for arcade sappers.

Andy Walker's arcade experience told him that the two ingredients for success are spectacular graphics and good sound. But that wisdom left him with nowhere to go, as a home computer that could do justice to those two requirements still hadn't appeared - as far as Walker was concerned, anyway. Maybe his standards were too high.

But he was immensely impressed when the Commodore 64

appeared on the scene, as spiffy graphics and its VIC chip. "We bought a few 64s and took them apart, and found that the VIC chip does the same as a board full of chips on an arcade console - what an awakening for me." Walker will, without hesitation, produce a circuit board the size of a drinks tray for anyone who doesn't believe him.

And his views haven't changed since "the 64 really is the best value machine on the market. The technology you're buying for the money is terrific. The screen editor is terrific too". Troubles is, Walker doesn't know the language. But on the strength of what he saw Walker adopted the 64 as his main machine.

So Taskset came into being (at a time when Jetpack had just appeared on the Spectrum), with a team of programmers nurtured in

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arcade work, working for a machine they reckoned could display their talents to the full. But why choose an unusual name like Taskset? Simply because they needed to become a company quickly, so they bought a name off the shelf. Walker felt it sounded reasonable.

Bags of ideas

Taskset didn't need to adapt its working routines to write for the Commodore 64, the team carried on originating games in their accustomed way. "We carried on operating what we call an ideas bag," explains Walker. The bag is actually a board hanging behind Walker's desk upon which people scribble their ideas. "We also run regular brain-storming sessions in which lots of weird and wonderful ideas get thrown around." But the casualty list seems high: "about one in every twenty ideas actually becomes a game."

And the real mainstay for Walker is originality; probably a hangover from his experience of arcade games, and something he'd really like Taskset to become known for. "You've got to be able to cut out with a game that you've already done - probably not many other games houses could make the same claim."

And the theorising continues

apart from originality what we'd aim for in a game is relatively simple rules but a high standard of presentation. There's no reason why graphics shouldn't be good and music shouldn't keep tempo with the action."

And do Taskset's games live up to all those aims? On Cosmic Convoy, its first game, Walker has doubts. The most he'll say about it is that it was an original offering. But he'll wax lyrical when pressed about Pipeline and Jam man, both of which have been remarkably successful.

"Pipeline came out of an ideas bag we had when we were still writing for the arcades. We'd had a burst pipe at the office one night, dripping water perilously near to some expensive hardware. The plumbers came next morning and it developed into a really crazy situation - workmen galore, one guy holding a spanner while three others watched." So the idea went into the bag and eventually surfaced, albeit a little transformed.

"It's a simple game but it was a long way advanced over its competitors, especially in terms of music," enthuses Walker. He plays the game almost reverently "so simple, the idea is to engender panic; you can win if you keep your head, not many people get past pipe ten..."

Rodney and Bozo

Pipeline set the trend for a success-

son of games characters, like Bankin' Rodney in Jammin'. That game stemmed from Tony Gibson, Taskset's reggae-loving musician, who hero-worships the late Bob Marley - hence the game's strong red, gold and green colours.

Walker probably overdoes that game even more: nobody had driven the 64's sound chip like that before. Jammin' has a drum, bass and melody line, and it always keeps time with the action, it's truly interactive. There's no killing involved either, just collecting instruments so that they'll play to you. And the badgies are just bum notes.

Whether you like the game or not, there's no denying that both the music and graphics are brilliant. The tunes either obsess you or drive you mad.

Then came Bozo, the unsteady and-his Bozo's Nigh Out That's Taskset's most original and bizarre offering to date. But games that include a drunk, a bunch of niggers and sweet-painted ladies will inevitably offend somebody somewhere.

Walker is quick with his defence: "Bozo is a reasonable idea. And I don't think there's anything to alienate youngsters. Alcohol is never mentioned - it's wobbly juice. An awful lot was cut out so as not to be offensive." One idea that didn't quite make it was a bladder that would fill up as Bozo drank the problem of emptying it proved an insurmountable - probably a mixed blessing.

That prompts Walker to risk a few generalisations. Like, "there's a lot of arguments for us writing what we want. For example, we'd write a political game whether or not we defended a political party or not. We are our own masters. We back games with our own money, and you please yourself whether or not you buy them."

That assertion of independence seems to pervade the writing process itself. "We never advertise for games contributions and we don't buy anything in. If a game is no writer here, it doesn't get published."

And writing itself is always done as a team. "I'm not saying individuals aren't important," assesses Walker. "It's just that the process is too big for individuals. The best way forward for Taskset is to gather a team of specialists: everybody is good at what they do."

Getting to the chips

Having decided to use an IDE, what are the mechanics of writing a game? Walker quickly asserts that all writing is done in machine code and nothing else. "I don't do anything getting between me and the chips. He doesn't know basic anyway and probably doesn't want to."

To make the writing process easier, Taskset has invested heavily in development hardware. Set up as the Apple II macros (they run with the 6502 processor similar to the 64's) they use as development machines running the Merlin assembler package. Then there's the Omega local area network. This connects the input/output ports of all the Apples, enabling them not only to transfer programs and data to each other but to share a 1-megabyte Winchester hard disk which stores all the work done and can be accessed by anyone on the network.

Not only that, Taskset has spent a great deal of time writing cross-utilities. "We couldn't buy the utilities we wanted so we wrote them ourselves they all link together. We've written a complete machine-code monitor too." Another example of that mad-prized independence?

More recently, Taskset discovered the Macintosh graphics interface and is now using it to generate graphics, having written their own utilities for it. "The impact has been enormous," enthuses Walker. "You can generate in a day what would have taken a week to complete. That means we can afford to experiment with ideas much more."

Walker insists that the new utilities won't make Taskset pro-



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COMMODORE 64

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Meet the Challenge

Profile

duce games more quickly "We can't produce games quickly because we're a small company, and machine code won't rush. We don't want to either, I don't want Taskset to become a big conglomerate. We're staying small so that we can all be Indians" by that he probably means everybody stays a part of the team and gets equal shares in the glory.

But Taskset has grown despite these assertions, and Walker has taken on an accountant and a marketing man, suitably called Andy Numer, to allow him to do what he enjoys - write games. And probably to shark the mundane yet essential job of administration.

Computer games is now big business, no longer the cottage industry of yore. And Walker won't hesitate to stress the importance of good management, especially when bankruptcy casualties among software houses are becoming uncomfortably regular. But he'll claim immaturity as the main cause of a company's demise rather than the activities of organised games counterfeiters.

"I don't think piracy is responsible for any software house's downfall. We've been badly hit too. And we're doing something about it. I hate it because it involves me in a lot of work and money, and that offends me". What he's doing is embarking on a long and tortuous period of legal action. Taskset could join the Guild of Software Houses and take joint action. But Walker hasn't got round to it. "It's just not the all-important problem."

Making plans

With the future of some software houses being abruptly curtailed, what kind of plans has Walker made for Taskset? "We have to be international in our outlook. It's no good being in just one country. You've got to be in Europe, which means providing games on disk because the disk market is much bigger there. We've also got links with America from the old days, which we're using to good effect."

America is probably a thorn in the side to many British games houses as American software sells

rather well in this country. Walker asserts it doesn't bother him. "It was bound to happen. The games are generally of very good quality and is a good healthy competition. So we can only welcome a move like that. The real winners are the customers. They're getting a really good deal."

Time for some more home spun Walker philosophy. "Customers have a lot of power. If only they'd realise it. They have the power to make or break software houses. For example, if people don't like Boso it would put them off everything else we do." And inverting that theorem, Boso fans will invariably turn to Taskset for future games.

So Taskset is determined not to produce inferior games. It's all a question of credibility. Or, as Walker puts it, "we want to be known for original entertainment, and I'm quite happy with that as my major aim. We're not interested in business or utility software. We write games and we think we're good at it."

But will Taskset's future games

continue to be exclusively for the Commodore 64? After all, Commodore has just announced the 16 and Plus 4 models. Does Walker regard those as true gaming machines? The answer is characteristically abrupt. "I won't even look at the 16, and with the FX10 the answer's a qualified 'No'. It's got no sprites and they've thrown away the SID chip. It's madness and a step back for the gaming world. Neither of them will sell better than the 64. And the 64 will be around for a long time. Commodore couldn't kill off the demand if they wanted to."

Certainly, software houses continue to churn out innumerable games for the 64. Taskset doesn't work quite that quickly but it is currently launching two new games. The first, *Poem Painter*, involves a character called Bill Stickers. And if you're reminded of a character from a seaside postcard, you won't be surprised that the second game is called *Seaside Special* - must be something in the Bridlington air.

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Our regular round-up of games reviews

We get to see a lot of games here at Commodore User, so many in fact that we can't handle all the reviewing ourselves - we farm out some of them, which is why our reviews have someone's initials at the end of them. We look at everything we get, but we don't necessarily print all the reviews we write: instead, we tend to stick with (a) all the best games we come across and (b) those games that you're most likely to find in the shops or the mail order ads.

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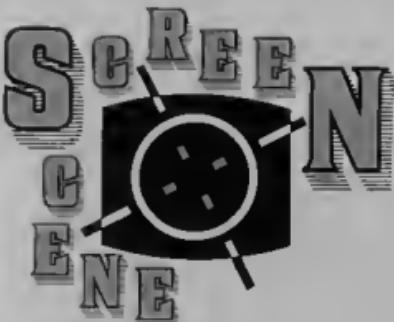
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Joystick only
Price £5.95

This is a pale shadow of Arcadia although at least the playing area is wider and the top five scores are retained. The vertically expanded screen displays the countless which must be survived by your languid green spaceship until the next wave is summoned up.

The first three opponents are alien craft with a tendency to drop bombs and do present a challenge but the so-called fireballs in wave four are non-existent. Not so the meteors on the fifth frame as they race in at all angles, calling for constant evasive action. After that it's round again but with your opponents having undergone a popular explosion. Unlike Arcadia you cannot move vertically, also your score slows down towards the end of each phase thereby increasing the likelihood of a collision.

Again compared to big A the alien forms are dull (sorry chap). More carpings: is the user supposed to illustrate the game (no money) and who conjured up the sonic? In isolation not bad but Space Swarm really does suffer by comparison to an established best seller.

Software Projects

ROMIK SOFTWARE
ALPHOIDIS
FOR THE UNEXPANDED VIC 20



Obviously related to Centipede but with sufficient innovations to distance itself from the typical cover jobs. A cyan segmented space worm is wending its way towards you, with green meanders for company as your laser chops up the worm, shoves it off if it becomes detached and pursue independent courses. Green and purple cosmic toadstools remain in the spots where you scored hits, taking several more shots to be finally disintegrated. Wipe either form of adversary from the black sky and they spring back more numerous than ever.

A spinning fuel tanker crosses the top of the screen spilling acid rain, but this ship to gain extra fuel. Apart from maintaining the energy levels you will also need to ensure that your laser tubes don't overheat, to advise you on both critical requirements there are gauges on either side of the screen. To do well you will have to balance the need for warding off aliens and collecting fuel against rearming your weapons systems, much as

Presentation:	*****
Skill level:	*****
Interest:	****
Value for money:	****

Presentation:	***
Skill level:	***
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ROMIK SOFTWARE PRESENTS

INSECTOR

FOR THE UNEXPANDED VIC 20

A REAL ACTION SHOT OF THE GAME
WILL YOU BE THE SUPREME INSECTOR CHAMPION?

INSECTOR
VIC 20 (unexpanded)
Joystick only
Price £5.99

An adaptation of Defender which will only prove suitable for those able to prove their worth with ultra hectic everything-happening-everywhere simultaneously scenarios. A black horizontally expanded screen (the Vic can't reach the 64 a truck or not!) at first displays two yellow, bomb dropping mega-insects, just out of range of your red wedge-shaped interceptor soon to stalwartly defend the purple humans covering in their burrows.

Only two? Yes but as the green landers scoop up specimens of homo-sapiens and, perchance evading your withering laser fire, reach the top of the screen they will mutate to increase the insects' numbers. Soon yellow pods will appear dispatched by the ussecs, only to engender cyan spiders which vastly increase the shower of bombs raining from above, in fact there comes a time when the picture explodes a technicolour snow storm.

After a few initial runs, you get down to business, the addictive quality of the game will dawn on you simply, surely you can contain the emotion without the whole dung careering beyond your control, nexttime.

Comprehensive instructions precede the main program which features sixteen speed levels, changing pulsating noises, "howling" wind effects and an interesting screen display. If you fancy a challenge demand a demo of Insector

LS

Book

Presentation: *****
Skill level: *****
Interest: *****
Value for money: *****

FALCON FIGHTER
VIC 20 (unexpanded)
Joystick or keyboard
Price £6.00

A horribly addictive example of Scramble adapted for a Spartan 3.5". I managed five stages at speed 1 (choice of four speeds) and was unable to detect any flickering often associated with scrolling landscapes on the Vic. The border changes colour to match that of the sector, which makes things easy on the eye and sets off the white flight area nicely.



The first stage, green mountains, gives the opportunity to bag a few ground targets and gain practice in avoiding the omnipresent multi-colour space mines. The blue cavern provides the challenge of purple meteors, then out in the open again, red signals the presence of missiles. Sector four, purple, is well peppered with bobbing saucers, while another blue cavern (well with mines) revamps the tricky mussels. This leaves three sectors unexplored, but I'm willing to bet these are no maze.

The explosions are awful only, unless you count rapidly alternating screen colours, there is no debris. The high decibel background noises are supplemented by "plummeting bomb" sounds and the occasional bell as your rocket collides with obstacles.

Apart from stockpiling up fuel in the time honoured manner, ammo dumps have to be blasted for a supply of bombs, run out of these and you will most decidedly be in a Catch 22 situation.

LS

Interceptor

Presentation: *****
Skill level: *****
Interest: *****
Value for money: *****

SOFTWARE ON

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Victuals

How to type in Victuals

How we reproduce listings

We have two methods of presenting listings. When we can, we run them through a converter program that replaces the hexographic control codes with more meaningful symbols.

When you see... It means

[CU]	cursor up	press the cursor up key (shifted)
[CD]	cursor down	press the cursor down key
[CL]	cursor left	press the cursor left key (shifted)
[CR]	cursor right	press the cursor right key
[BOM]	connect to the top left-hand corner	press the HOME key
[CLS]	clear	press the CLR key (shifted)
[DEF]	reset	press the INS key (shifted)
[BLK]	change to black	press the BLK key (CTRL and D)
[WHT]	change to white	press the WHT key (CTRL and E)
[RED]	change to red	press the RED key (CTRL and F)
[CYAN]	change to cyan	press the CYAN key (CTRL and G)
[PUR]	change to purple	press the PUR key (CTRL and H)
[GRN]	change to green	press the GRN key (CTRL and I)
[BLU]	change to blue	press the BLU key (CTRL and J)
[YEL]	change to yellow	press the YEL key (CTRL and K)
[REV]	reverse on	press the RVS ON key (CTRL and S)
[OFF]	reverse off	press the RVS OFF key (CTRL and O)
[SPC]	space	press the space bar repeat the specified number of times

[G->key] press specified key together with CTRI key**[G->key]** press specified key together with SHIFT key**And you...**

When you see any of these codes prefixed by a number, you must press the appropriate key the same number of times:

for example [3SPC] means - press the spacebar three times

or
[SCD] means - press the 'cursor down' key five times

These listings we generally run out on a letter-quality printer though, and conventional graphics can't be handled on a daisywheel. So some listings are done on a Commodore printer, in which case you may see the standard control codes.

OLP	...	REVERSED	HEART
HOLE	...	REVERSED	5#
RVS BH	...	REVERSED	7#
Prls RF	...	REVERSED	UNDERSCORE
LUBLF UP	-	REVERSED	SHIFTED *
~URF OR DOWH	-	REVERSED	SHIFTED *
+URF OR LEFT	-	REVERSED	SHIFTED Q3
CUR OF FLIGHT	-	REVERSED	UPWARD BAR - SHIFTED H

KEY COLOR F

BLACK	■	REVERSED SHIFTED P1
WHITE	■	REVERSED E
RED	■	REVERSED E
CYAN	■	REVERSED COMMODORE SHIFTED *
PURPLE	■	REVERSED COMMODORE SHIFTED *
GREEN	■	REVERSED COMMODORE SHIFTED *
BLUE	■	REVERSED UF WORDS
YELLOW	■	REVERSED LEFT ARROW

THE FUNCTIONS (G->KEY) WITH THE TYPE NOT-PRINTED

F1	■	REVERSED SHIFTED P1
F2	■	REVERSED E
F3	■	REVERSED E
F4	■	REVERSED UF WORDS

THE END PRINT *CHARACTERS TOO.

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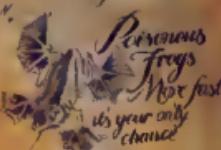
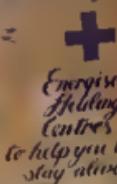
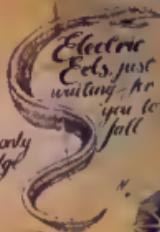
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Oh Harry. This time he's gone too far. Somewhere, buried deep in the lost caverns of Machu Pichu, Peru, lies the stolen and, of course, priceless Raj Diamond, along with a hoard of missing gold bars.

Harry's little niece Rhonda and Quickclaw, her cowardly cat, are supposed to be with him, but they strayed away and are lost in the bowels of the caves.

A wealthy university has asked him, while he's cleaning this mess up, to capture an elusive stone-age cave rat.

What fun.

He just has to avoid the occasional poisonous frog.

Oh yes. And the wickedly clawed condors.

The electric eels. And a very nasty line in thirsty vampire bats.

So you can see Harry could do with some help. All you'll have to help you are your wits and some gas-filled balloons to bridge the wider chasms. And you'll be in for the game of your life.

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Hi-res Plot

by Jason Dobbs

This neat little program allows you to use a joystick to draw on a cut-down 152 by 180 hi-res screen, and produce a printout of your work. But you'll need at least 3K of expansion for your Vic. According to Jason Dobbs, the program works well with the Commodore 1515 printer but it should also work with newer Commodore printers.

Because the pixel on the screen is rectangular rather than square, the printout is usually a little longer than the picture on the screen.

To run the program, you must put the start of Basic memory to \$100. That's not too difficult; you merely enter:

POKE44,12: POKE\$192,0: NEW (return)

before you load the program itself. The program takes a little time to initialise, but you should eventually see a blank screen, a green border and a yellow cursor position. If those colour combinations don't please you, they can be altered by changing the values in lines 30 and 1005 in both cases, you need to change the numbers immediately preceding the last colon.

To operate the program, you use the joystick. A few special keys are used too:

- P lets you print your design
- CLR is used to clear the screen (be patient, it takes a little time)
- Keys from 1 to 9 are used to change the amount the cursor moves in one step
- F1 draws a line between the spot where F1 was pressed and the spot where you pressed the fire button. Pressing the fire button in the same way but without pressing F1 runs out rather than draws

```

10 DIM#(220) PRINT'1C1E6' POK36867 149 POK36869,205 POK36866 19 POK36865 44
POKE36864 14
20 FORT#10131 POK36866+7.1 POK37866+T.7 NEXT
30 DGSU$1000 F=
40 WAD GETR FTR=“PENH10”
45 1589 1590 1591 1592 1593 1594 1595 1596 1597 1598 1599 159A 159B 159C 159D 159E 159F 159G 159H 159I 159J 159K 159L 159M 159N 159O 159P 159Q 159R 159S 159T 159U 159V 159W 159X 159Y 159Z 159A1 159B1 159C1 159D1 159E1 159F1 159G1 159H1 159I1 159J1 159K1 159L1 159M1 159N1 159O1 159P1 159Q1 159R1 159S1 159T1 159U1 159V1 159W1 159X1 159Y1 159Z1 159A2 159B2 159C2 159D2 159E2 159F2 159G2 159H2 159I2 159J2 159K2 159L2 159M2 159N2 159O2 159P2 159Q2 159R2 159S2 159T2 159U2 159V2 159W2 159X2 159Y2 159Z2 159A3 159B3 159C3 159D3 159E3 159F3 159G3 159H3 159I3 159J3 159K3 159L3 159M3 159N3 159O3 159P3 159Q3 159R3 159S3 159T3 159U3 159V3 159W3 159X3 159Y3 159Z3 159A4 159B4 159C4 159D4 159E4 159F4 159G4 159H4 159I4 159J4 159K4 159L4 159M4 159N4 159O4 159P4 159Q4 159R4 159S4 159T4 159U4 159V4 159W4 159X4 159Y4 159Z4 159A5 159B5 159C5 159D5 159E5 159F5 159G5 159H5 159I5 159J5 159K5 159L5 159M5 159N5 159O5 159P5 159Q5 159R5 159S5 159T5 159U5 159V5 159W5 159X5 159Y5 159Z5 159A6 159B6 159C6 159D6 159E6 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by Rupert Willard

Don't be fooled by this title, this is a version of that screen classic and hardly perennial game, Breakout, for the unexpanded Vic. Of course, it doesn't incorporate the intricacies of play you'd expect from the original. And it ends as soon as you've broken out at the top of the screen.

But there are some nice touches: like the authentic pinging sounds, a high-score facility, choice of up to nine serves and the full quota of six barriers to burst through. Pressing Z moves the paddle to the left, and C to the right.



READY.

Level 9 Adventures are superbly designed and programmed, the contents first rate.

YOUR 64 June 84

Whichever machine you own, if you have the vaguest tendency towards adventure playing then you must try one of these games (unfortunately you'll probably end up wanting to buy the lot!).

Computing Today, August 84

To me, all Level 9 adventures create a remarkable atmosphere because the descriptions sound so life-like. This is where so many other adventures fail.

Crash, July 84

But it's not just the size of the game it's the quality as well that is astonishing... scenes to fire the imagination.

PCG, April 84

As in all Level 9's adventures, the real pleasure comes not from scoring points but in exploring the world in which the game is set and learning about its denizens.

Which Micro?, February 84

Adventure Quest



Level 9 Computing

Adventure Quest is the second in Level 9's acclaimed Middle Earth trilogy, though it can be played by itself.

Available from W H Smith and good computer shops everywhere. If your local dealer doesn't stock Level 9 adventures yet, get him to contact us or Centresoft, Microdealers UK, Ferranti & Craig, Leisuresoft, Lime Tree, LVL, PCB, R & R or Wonderbridge.

I thoroughly recommend these Adventures, they are excellent value for money. No self-respecting Adventure-addict should be without them. I believe Level 9 are producing a series of Adventures which should be regarded as classics.

Atari User, July 84

These programs run very fast and there are no frustrating pauses. Level 9 Adventures are superbly designed and programmed, the contents first rate. The implementation of Colossal Adventure is nothing short of brilliance: rush out and buy it. While you're at it, buy their others too. Simply smashing!

Your 64, June 84

Level 9 – arguably the producer of the best adventure games in the UK – has done it again. LORDS OF TIME is a sparkling addition to its stable of winners.

Acorn User, July 84

(SNOWBALL). This is another imaginative, massive-scaled immensely enjoyable adventure from those experts down at Level 9 Computing.

Your Computer, March 84

September 83

Level 9 specialise in huge adventure games, cramming over 200 locations and a host of puzzles into your micro. We take care when designing games—writing them like stories with detailed settings and sensible reasons for the puzzles. They are solved by inspiration—not luck.



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Three scrolls for the Vic

by Neil Phillips

Ever wondered how professional programmers produce those dazzling scrolling effects? Neil Phillips reveals all with these three short routines.

Horizontal scroll makes a single line of text move across the screen. Vertical scroll does the same, but this time it's up and down. Finally, there's a routine to scroll the whole screen towards the top. Happy scrolling.

Vertical scroll

```
1 REM<>"COLKITHES IS AN EXAMPLE OF A VERY SIMPLE WAY TO ADD VARIETY TO YOUR PROGRAM.  
2 REM W/CHT"  
3 REM"=VERTICAL SCROLLING. (2SPC)"  
4 REM"(REDUCED COULD EASILY BE INCORPORATED INTO A PROGRAM AS A SUBROUTINE. (2SPC))  
5 REM  
6 REM"COLKITH ALSO USES VERY LITTLE MEMORY. (2SPC) (TRY YOUR OWN MESSAGE!) (2SPC)  
7 REM"CLICLU"  
8 REM"=A-25-CX-2B  
9 PRINT"(CLS)(C1200)"  
10 FORN=1TO1000  
11 PRINT#(N)(R11)RED(XB N,0)  
12 FORN=1TO1000 NEXT  
13 FORN=1TO1000  
14 FORM=1TO5000 NEXT PRINT#(CLS) I LIST(0-50 CLR END
```

REF ID:

Horizontal scroll

```

18 PRINT "[CLS][CD]([CR][LF])[REV]([SCROLL][3CD])"
19 PRINT "#[CLK13C03][BY NEIL PHILLIPS][CD])"
20 BL#="[[SPPC1]]"
21
22 REM "COLBUTHS IS AN EXAMPLE OF A VERY SIMPLE WAY TO ADD VARIETY TO YOUR PROGRAMS
23 REM WITH "
24 REM "HORIZONTAL SCROLLING. [2SPC1][GR01] COULD EASILY BE INCORPORATED INTO R PROGRAMS
25 REM AS A "
26 REM "SUBROUTINE. DURING WHICH VERY LITTLE MEMORY,[2SPC1]WILL TRY YOUR OWN MESSAGE
27 REM "
28 REM "#$L6+&#$B+C$#BL$"
29 FOR I=1 TO LEN(K#)
30 PRINT #I#M#D#(K#,I,I#)
31 PRINT "#20U"
32 FOR I=1 TO LEN(L#)NEXT I
33 NEXT I
34 PRINT "#COLBUTH"
35 I=LEN(P#)+1,E#=P#

```

READY

Screen right

REF ID:

Review

Turning tortoises into hares

The 1541 Express cartridge reviewed

by Kevin Bergin

The Commodore 1541 disk drive has an unhealthy reputation for sluggishness, to the extent that cassettes with a 'Turbo' facility load just as quickly as disks. And there's nothing you can do about it.

Well, not quite. Now you can buy the 1541 Express cartridge from Ram Electronics. It connects computer and disk drive via the 64's cartridge port, and claims to let you load and save files from the 1541 at more than double the normal speed. That sounds pretty impressive but is it impressive enough to warrant its hefty £49.95 price-tag?

What you get

For your money you are supplied with a cartridge that plugs into the 64's cartridge port. And there's a short eight-page manual to help you install and use your new device.

But before you can use the 1541 Express you must face the somewhat daunting prospect of connecting two wires which are attached to the cartridge, to two chips inside the 64. This means that you must take the lid off the 64 and this could affect the warranty, so be warned.

The two wires that dangle from the cartridge are labelled U510 and U14. These are the names of the chips that the wires must be connected to. Both wires have a small grip on the end of them so that the connection is secure, but easily removable.

The wire marked U510 is connected to pin 28 of the processor chip and the wire marked U14 is connected to pin 15 of the chip marked U14 (in fact the chip is not marked U14 at all, it's on the board beside the chip). It's far better to run the wires through the back of the 64 so that the casing can be closed properly and securely.

Don't worry about connecting the wires to the wrong pins; you won't damage anything. The cartridge simply won't work and you'll just have to check the connections again. Having connected the wires to the correct pins the 64 should be put back together again and the cartridge inserted into the cartridge slot.

When you power up the 64 with the 1541 Express properly installed, you'll see three lines to

the power up message instead of two. The second line should give the product name and copyright message. The amount of RAM though, is not affected; there are still some 38911 bytes available.

Operation

Using the cartridge is very simple and smooth. When the 64 is powered up with the 1541 Express installed, the two function keys F1 and F3 are set to toggle between fast and slow mode. In other words the normal disk access time may be used with the cartridge in place by pressing the CTRL key and the T3 key together; the screen will flash once quickly to show you the command has been accepted.

To get back to fast mode simply press 'CTRL' and 'F1' together. Again the screen will flash once, although this operation takes a little longer. Holding down the SHIFT key and pressing 'RUN/STOP' will load and run the first program on disk. The cartridge changes the default device to disk. So files can simply be loaded in the form:

LOAD<FILENAME>
<return>

There is no need to enter the device number or close the quotes; the usual abbreviations are accepted.

Ram Electronics claim up to three or four times the usual access time, but the actual speed is more like double on average. Above are some timings for loading and saving both programs and word processing files with

	Normal	1541 Express
Loading 33K program	84 secs	39 secs
Saving 33K program	91 secs	66 secs
Loading 34K w/p file	112 secs	66 secs
Saving 34K w/p file	92 secs	68 secs

and without the 1541 Express cartridge

These tests are all approximations but they do show that the cartridge doesn't actually achieve three times normal speed. They do however show a large speed improvement particularly with normal programs, as opposed to files loaded and saved from a word processor.

The 1541 Express will work with Easy Script, Papercraft and (I am informed) most other soft loaded word processors. From the tests I found the disk access time was generally reduced by half.

Using other software such as Utilities and BASIC extensions does not have any adverse effect. Even if a program does conflict it is often possible to load and run it by switching to normal mode.

Buffer space and Sprites

The 1541 normally objects to sprites being on the screen whilst the disk is accessed, but not so with the cartridge installed. You can display sprites and still have access to disk.

The cartridge reverses one of the drive bullers, reducing the number of files OPEN at any one time from three sequential files or one sequential and one relative file to two sequential files or one relative file, in fast mode

You can also use a modem with the cartridge. This allows even swifter downloading of programs. However if you wish to have more than one device connected to the 64's serial port while using the 1541 Express you will have problems, as it will only access one. So anyone with a 1541 and a printer connected to the serial bus or two 1541's will not be able to use the cartridge with more than one of these devices.

Ram says it is going to make a cheap cable that will allow you to have two drives or a printer and one drive connected while using the cartridge in fast mode. The cable will also have some other features. No details as yet we shall have to wait and see.

At present, depending on what printer you are using and how it is connected, the cartridge may work in slow mode with your printer. Two single drives may be connected with the cartridge installed, but only accessed in slow mode.

The code for the cartridge is invisible, the normal cartridge space is \$0000 to \$3FFF hex, but upon examination there was nothing there. The space that normally occupies the ASCII code for the power up message has some strange code and the area from \$DE00 hex onwards will not disassemble and those who are curious, this should provide some challenges.

Review



Documentation

This is the area that's sadly lacking as is so often the case. The manual is a mere eight pages long and the presentation is not nearly as professional as the product itself. This short tome covers the installation of the cartridge, the operating instructions and functions of the cartridge and working with other peripherals. But it gives only a few notes for programmers.

There could be a great deal

more explanation of the cartridge in general and the problems that might occur in using it with other peripherals. It's pretty obvious that you're going to have problems using cartridge-based software, say, a word processing package, to access files on disk.

A few demonstration programs with documentation would not have gone astray, together with more information for programmers wishing to make extensive use of the cartridge and its facilities.

Conclusion

It's a shame about the manual, it could have contained a lot more information and the presentation could have been better. The other drawback is of course the lack of a cartridge port when using the 1541 Express; any cartridges you normally use, or wish to use, cannot be connected. And it seems that the only way around this is to buy an expansion board. Even then I am not sure if they would work

together; perhaps Ram Electronics will clarify this in the near future.

But the product does do what it claims. And it will save you a lot of time if you use your 64 and 1541 daily. The general standard of the product is very high and I have no hesitation in recommending it in fact, since reviewing the 1541 Express I have purchased one myself. It is one of those products that you just have to have - that's if you can afford it.

Under review

Description:

1541 Express cartridge

Fast disk access utility for 1541 disk drive

Supplier:

Ram Electronics

Address:

106 Fleet Road

Fleet, Hants

02514 5858

Telephone:

Rather expensive but very effective

Summary:

£49.95

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COMMODORE 64
DRAGON 32
AND 64

Adding up the Plus/4

by Karl Dallas

It's now 'official' that the Commodore Plus/4 will actually make an appearance on your local High Street, having made its debut along with the less illustrious Commodore 16 at the recent Commodore Show. But the confusion and speculation about what role it will take on, and what gap it will fill in a market that's already bursting at the seams with new and newfangled hardware, rumbles on unabated. And then there's the inevitable competition from the Commodore 64 itself.

Karl Dallas has managed to acquire a pre-launch version of the Plus/4 (albeit without the ROM-based software) and has managed to fuel his own speculations with some hands-on experience, notably of its extended Basic and graphics facilities.



About 18 months ago I was feeling pretty pleased with myself, because I had secured an exclusive preview of Commodore's brilliant new CWM 700 128K business machine. Today, stocks of the 700 are being sold off at bargain prices. Software companies who invested time and money in developing programs to take advantage of the machine's special fea-

tures are trying hard to recoup their costs.

The point is that when you are dealing with a company whose marketing of new products seems as capricious as Commodore's, the merits of any given machine may have little to do with whether it goes or stays. And when a new machine has as many question marks against its future as the new

Plus/4, that may be doubly so...

In the starting blocks

The Plus/4 comes on to the market confronted by some hefty opposition, not only from the likes of this superbly concerned Amstrad and the firm of the new common standard MSX machines from Japan, but also from within Commodore it-

self. For in many ways, the Plus/4 seems to offer a less versatile and less compatible alternative to the already tried and tested Commodore 64, with more sophisticated Basic programming commands, but without the 64's simplified and spiffy facility.

Indeed, when I first saw the 20

the Commodore Plus/4 previewed

At Hanover Trade Fair in the spring and later the actual Plus/4 at the Farnborough Show in London, I must confess I was sceptical about whether Commodores were really serious. I still feel rather than way, but I am assured that as soon as Commodore's corporate move to Corby has been successfully completed (and it's inevitably taken longer than planned), Plus/4 will start rolling off the production lines in time for Christmas. And software companies are working hard to have adequate applications ready at the same time.

The machine is intended to be a powerful package, with 32K of ROM, 64K RAM and advanced basic, including graphics and sound commands. It has programmable function keys, and an integrated ROM-based software package, covering word processing, spreadsheet, database and business graphics; it is planned to sell at least £280.

But it won't run any other Commodore software and the peripheral sockets are not the same as for other Commodore machines (apart, that is, for the well-known and even more silly Commodore 16). However, I managed to run an ordinary 1541 disk drive from the serial port, and I actually found it easier, using an ordinary 5-pin DIN plug, to attach a monitor. With my 64, I had to make up a special lead.

In possibly, the peripheral incompatibility is more a matter of using different plugs than any really distinct differences, though I see we are promised a "fast disk drive", the SFS 481, in addition to the Plus/4's version of the 1541, the 1542.

A clean machine

The computer I had access to was something of a "clean machine", without the integrated software, so a verdict on that will have to wait. It was also without any kind of manual, though I had access to some technical data that probably won't be in the manual anyway. I must say that after prolonged usage I was much less sceptical about its merits as a piece of hardware.

Stapewise, 2 represents a real leap forward with Commodore's past. Long enough of a rectangle that the keyboard sits 16 and 64 shape (which has also been retained from the 16), about half an inch wider and nearly 1½in deeper. But it's not as high, a mere 2½in compared

with the older machine's 3in at the back.

And it has two more keys: ESC above CONTROL on the left and RESTORE has become a duplicate CONTROL. There are also four arrow shaped cursor controls. That means you require no shift for up and left cursor movement.

Two additional labels on the '<' and '>' keys at the bottom of the keyboard indicate a new function available: FLASH ON and FLASH OFF. FLASH ON is accessed in the same way as RVS ON, by pressing it with a quoted print statement, but to switch off this facility you have to reposition the cursor in the same place. As you reach the bottom of the screen, the text scrolls up,

Function keys

On power up, the four function keys along the top left-hand of the keyboard are dedicated, respectively (unshifted/shifted), to print GRAPHIC/SNCLR (cr), DLOAD/DSAVE, DIRECTORY/RUN (cr) and HELP/LIST (cr). SNCLR clears the screen (like CLEAR/HOME) and those where I've indicated "(cr)" include a carriage return and hence immediate operation. It is impossible, therefore, to add any parameters to RUN or LIST, unless one rededicates the keys, which is quite easy to do with the KEY command.

The parameters for doing this

Commodore business system users (through the Basic used as described in Basic 3.5). These include DIRECTORY, DLOAD, DSAVE, HEADER (to format a disk), SCRATCH, COLLECT (to validate a disk and remove any unclosed files, etc.), COPY, RENAME and BACKUP (available only with dual disks), to copy an entire disk.

No longer is it necessary to add the device number (will it) in disk commands: DSAVE "filename" is equal to SAVE "filename". DIRECTORY is the same as the "wedge" command available with the DOS support utility on the 64. Unlike LOAD "file" followed by LIST, it doesn't overwrite any program in memory. DIRECTORY can



the flashing character scrolls up as well, until it vanishes off the top of the screen. That makes things somewhat difficult.

Colours (including those accessed by the GRAPHIC n command, where n is a number from 0 to 4) is text (25 lines of 40 characters), 1 is hi-res graphics and 3 is multicolour graphics. Five lines of text are available on either of the graphics screens by invoking GRAPHIC 3 (hi-res split screen) or GRAPHIC 4 (multi-colour split screen).

are KEY n, text/string, where n is 1-8 and text/string is the new text to be printed and/or implemented when the function key is pressed. Slightly confusingly, F2 is not a shifted F1 but the second key along, so that the keys are actually numbered F1/F4, F2/F5, F3/F6 and HELP/F7.

HELP is a toolkit command for identifying errors in program lines during debugging. Its key can also be redefined, but despite its position it is F8.

The DLOAD/DSAVE option, of course, indicates the first instance where the Plus/4 is superior to the 64, in that it includes all the simple Basic 4 disk commands familiar to

be abbreviated DIR, making it a fast way of checking disk contents, program names, etc. The default parameter with all these disk commands is drive 0.

Inside and out

At the back and sides there are nine I/O sockets: 7-pin DIN socket (taking a 4-pin plug) for power from the rather chunky Commodore transformer, serial 6-pin DIN, cassette 2-pin small cylindrical socket, user port, memory expansion (cartridge port), two 7-pin cylindrical joystick sockets (similar but not identical to the cassette socket), and video 8-pin DIN at the

back, and RF (TV aerial) out on the left. By the RF socket is a low level switch, and on the right of the computer is a warm reset button and the power on/off.

The keyboard is quite pleasant to use. It's not quite as solid as the 64, certainly not a patch on the very firm, very quiet keyboard on the new business machines, but much less tatty, for instance, than the keyboard on the £300-plus Hyperion IBM compatible on which Commodore is basing its promised PC lookalike machine.

Inside, the machine is very well laid-out, with the 45-pin TED chip which provides all the power for the Plus/4's various activities very much in evidence, surrounded by a fence of metal shielding (incidentally, no one can explain why it's called TED. We know that the SID chip's name in the 64 is an acronym for Sound Interface Device, but we have it on no less authority than Gail Wellington that TED ever meant anything; its meaning has now been forgotten).

TED can access up to 64K of memory for display information and it (almost said he) also controls video output, system timing, dynamic RAM control, ROM chip selection, and keyboard control. TED selects the 16 colours and eight luminance levels per colour, control sound generation, controls the two-speed clock and flashes the cursor (or any other character) twice a second (2Hz).

More powerful Basic

On power-up, the screen displays the usual opening array, with the difference that the Basic indicated is 3.5, of course, and there are over 80 Kbytes of memory available.

In all, Basic 3.5 has over 50 more commands and functions than the 64, including 'toolkit' commands used in writing and debugging programs. These include AUTO, DELETE, ERRS, HELP, RE-NUMBER, RESUME, TRAP, TRON and TROFF Structured programming commands, DO, ELSE, EXIT, LOOP, UNTIL and WHILE.

Then there's graphics commands BOX, CHAR, CIRCLE, COLOR, DRAW, GRAPHIC, GSHAPE, LOCATE, PAINT, SCNCIR, and SSHAPE. Sound commands include TONE and VOL.

There are now seven reserved variables in addition to the familiar TI and TIS time variables (the use of which is unchanged), there are also the dark status variables familiar to users of Basic 4. DS (status

number), DS\$ (status message), and ST (status of I/O operation), as well as ER and EL, which gives the error number and line number of a programming error.

Machine-code monitor

The direct command, MONITOR, invokes Tedmon, the resident monitor (which can also be accessed via the keyboard).

- A - assemble a line of 6502 code
- C - compare two sections of memory and report differences
- D - disassemble a line of 6502 code
- F - fill memory with the specified byte
- G - goto a specified address and start execution
- H - hunt through memory for all occurrences of certain bytes
- L - load a file from tape or disk
- M - memory display of hexadecimal values in specified locations
- R - 6502 registers display
- S - save to tape or disk
- T - transfer code from one section of memory to another
- X - exit to Basic

seen via SYS 4 (like the Petz) which has available a set of single-line mnemonic commands (see table above).

The kernel routines seem mainly unchanged, although according to my data sheet, QINT1 has an address of \$FF81 (not \$FF84) and VECTOR is \$FF48 (not \$FFED).

Plus/4 graphics compared

Undoubtedly, most hackers will warn to the graphics commands, although it's a pity we've lost the sprites.

As on the 64, the bit-mapped hires screen is 319 wide by 199 deep. And the bit-mapped multicolour screen is 199 by 199 (the 64 reference guide says its screens are 320 and 196 wide respectively, but the effect is the same). The GRAPHIC mode command is obviously easier to invoke than the 64's POKEs and PEEKs, as it is the split screen, though text is limited to the bottom five lines.

However, text can be placed anywhere on a graphic screen by using the CHAR statement, so that

CHAR 1,0, "THIS IS THE TOP LINE"

will print along the top of the screen, 1 being the colour selected, the first 0 being the first column on the screen (numbered 0-38, not 1-40), the second 0 being the first row (numbered 0-24, not 1-25). The string can be printed in reverse if flagged with a ',' after, and turned off with a '0'.

It's interesting to compare the Plus/4's DRAW command with the same command in MSX and on the

ellipses, octagons and even diamonds and triangles as well as proper circles, depending on the parameters specified. The non-circular shapes are chosen by specifying 120 degree angles between segments of a triangle, 30 degrees for a diamond, and 45 degrees for an octagon. The default setting is two degrees.

Colours are specified from Red by allocating one of 16 to static background, foreground (ie characters), multicolour 1 or multicolour 2, or border, with an optional luminance parameter 0-7. The default luminance is 7, the brightest.

In all drawing commands, the colour parameter has to be chosen from one of the five areas already defined.

PAINT will fill the shape as created, either with the same colour as the shape outline or with a definable foreground colour.

The shapes so created can be SAVED or recalled by use of the SSHPRE and GSHPRE commands.

It is clear, though, that the graphics capabilities are designed for more serious applications than games, and the sound facilities are likely to be more useful for voice prompts than for space invaders etc. However, one software house already has a word processor with spoken instructions supplementing the screen prompts almost ready for commercial distribution.

Conclusions

Despite its appearance, the Plus/4 is not the Mickey Mouse machine it may seem, though whether its target market of small-to-medium businesses will believe that, remains to be seen. The problem is that the market will be very concerned about its meagre set of powerful Basic, and to the non-technical user it has very few advantages over the already established.

Its graphics capabilities, and ease of programming from Basic, are quite powerful, but the lack of any kind of sprite manipulation must put it in a poor second to comparable machines that have this facility.

A lot will depend upon the qualities of the ROM-based software, and how much special voice-based business packages are likely to have.

My scepticism about its future is less pronounced as a result of actually using it. But until I've had my hands on a production machine and looked at the ROM-based software, it's not entirely dispelled.

Adventure

Into the Valley...

Opening up a new adventure series

by John Ransley

You're probably familiar with the scenario of the Richard Shepherd graphic adventure *Urban Upstart*, which head-bangs your usual square fantasy foes and dripping dungeons in favour of a curiously chilling contemporary encounter that makes *A Clockwork Orange* seem about as violent as a round of arm-wrestling with Quentin Crisp. But it's a bit much when the aggro extends to the practicalities of playing the game itself.



I found out the hard way that *Urban Upstart* takes a particularly uncompromising approach to the task of letting the player save a game to disk at any point. Instead of just cutting a fresh track on your own disk in the form of a sequential file, as seems to be the accepted convention, *Urban Upstart's* Save option first totally reformats the disk you use. In other words, it wipes any and every single program already on the receiving disk to capture (which left me wearing a fixed grin of resigned exasperation, like one of those Olympic synchronised swimmers) just a single-track sequential file holding the few variables concerned.

There is no warning of this novel consequence of a Save in either the program notes or screen prompts, so I hope you read this before you lose, as I did, a great wad of keyboarding by taking something for granted. I can't fathom why *Urban Upstart* totally reformats instead of simply opening and closing a file in the usual way, but if one

program does so, there's a good chance that others do too. The lesson learnt is that it must be a good idea to test Save any new adventure in your collection, using a blank or expendable formatted disk to do so.

Across the pond

Sighs are set after a pretty unapologetic start. Then EMI mean to mix with the action in the UK software charts, and it's thanks to them that some of the top-rated titles from American software house Has-Ware is now becoming available this side of the pond. First offerings include a splendidly elaborate four-level arcade adventure for the Vic-20, *The Pharaoh's Curse*. But it seems that the anger of the ancients has extended to the packaging, because the tape version at least boldly proclaims that no RAM expansion is needed. It is - a whopping great 16K of it. Makes you think twice about impulse buys, doesn't it?

Just what is adventure, anyhow? Already there seem to be four distinct categories. There is the pure text adventure, such as the original *Caesars Cave*, the graphic adventure, such as *The Hobbit*; the animated adventure - *Valhalla* and the arcade adventure, like *Manic Miner* or *Alice's Adventures in Videoland*. Can anyone think of others?

Page the Oracle

You could call *The Oracle's Cave* from Dorcas Software an endless animated adventure, because not only does it offer four different quests but the cave layout is drawn afresh every time. This rule received bad reviews when originally released for the Spectrum and the version put out for the 54 shows why it's splendid.

You're faced with the fairly conventional task of exploring a cave complex where you may collect useful objects and treasures, and do battle with a variety of fierce monsters with degrees of success depending on your weapons, our combat strength, and ability to recover from wounds.

The many options available through single key presses (what a timesaver) including moving in any direction, skipping through secret passages, reading (it eats up time, though), exploring your immediate vicinity and pleading for help.

A particularly nice feature of the game is that you have just five days to complete each attempt, and a screen prompt shows the morning, afternoon and evening of each day slipping inexorably by as you delve deeper into the complex. Also constantly displayed on the lower part of the screen is lots of other helpful information, such as your combat strength and that of your current foe, the weapons and items you carry, and a mini-map showing the tunnels you've explored, which is redrawn every move.

Meanwhile, the top half of the screen constantly displays a hi-res view of your current location, including a sprite representation (looks a bit like Morph, actually) of your goodness, which walks along the scrolling caverns, wriggles up and down ropes and ladders, and attacks monsters at your command.



What wins extra praise for *The Oracle's Cave* is that the challenges you meet, their solutions and your continuing progress all have a decent logic to them - you don't get struck down at random at the whim of some so-called interactive elements. Thus the intelligent gamer can and does eventually win

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through. The icing on the cake is that the 54 tape version, price £7.95, uses the ultra-fast Pavid system, which gives a reliable Load Within a couple of minutes.

Even if, as a purist textual game, you buy no other animated adventure, do treat yourself to the exciting quality of *The Oracle's Cave*.

Colour tip

An irritating shortcoming of most text adventures (and one I found in the excellent *Infocom* titles) is a hideously Ford-type philosophy adopted when it comes to the use of text/background colour options - or, rather, the lack of them.

Strange to relate there are lots of us who find the 54's wretched combo of black on blue boring and/or a strain after a little time at the screen. One pause especially for elderly and others with poor eyesight whose enjoyment of a textual venture can be spoilt by the absence of the few lines of programming which can quite easily rectify the fault.

If you're writing an adventure yourself, here's a little sub-routine that will make it easy for you to avoid the thoughtlessness of most professional programmers who give players of your game a choice of 256 text/background colour combinations (which can be just as valuable to those using a more chrome TV or monitor).

And it's sometimes possible to break into commercial programs (you wouldn't, would you?) so you might even be able to tag the

The list of desirable British and American adventure games for the Commodore 64 is growing week by week. That reflects not only the growing interest in adventuring but also the 64's eminent suitability both in graphics and 'elephantine' memory for this brain-straining pastime.

In response to sackfuls of requests from avid gamers, the equally avid John Ransley has started a regular Adventure column to let you take time off from wondering colossal caves and dodging axe-wielding hobgoblins. But we'll still be relying on you, the reader, to tell us what you want. And in future columns, we'll try to give an airing to readers' comments, ideas and programming tips. But if you're "stuck in the mauve swamp" or you don't know what to do with the Gimblegook's wand, you'll find no real solace here. Now read on...

Games

Read all about it

Maybe it is a little too fundamental for the experienced cat-snatcher, but *The Adventurer's Notebook* by Mike Gerrard (Duckworth, £3.95) is written with such infectious enthusiasm for the subject that it makes a worthwhile addition to the micro bookshelf, whatever one's level of competence. It actually runs fewer than forty pages of introductory text. But these present a highly readable run-down of the genre's not so ancient history, gaming principles, and playing hints.



The larger part of the book is devoted to ten sets of adventure worksheets, every one of them comprising pages for recording your progress through the adventure objects found, action taken, recognised symbols and nouns, and so on. And there's a 105-location map for charting your progress.

You could of course use more than one set for larger adventures involving a greater number of known locations. You might even (though don't tell anyone I said so!) photocopy extra pages yourself - this helical spiral binding makes that easy to do. It's certainly an improvement on trying to decipher my previous night's squiggles and squares committed to the back of rates demands and book club invoices.

A more substantial volume altogether is Keith Campbell's *Book of Adventures* (Melbourne House, £5.95). Street credibility is en-

hanced with a foreword by Scott Adams, who comes dangerously close to writing something extemophilic about puddings - but with Adams, what can you expect?

The usual introductory chapters on the genetics of computer adventures (Crowther and Woods now being as familiar a twosome as Fortnum and Mason, Marks and Spencer or Surtees and Maclean) is followed by a gentle scroll through the various stages of creating an adventure, using sensibly an example program with fewer than a dozen locations to keep the baptisms simple. But it still manages to incorporate all the main programming ground rules.

You'll learn how to move around the map, site take and leave objects, introduce special commands and traps, check your inventory, and structure a one solution finale. All the examples are presented in Basic; that is non machine specific, so Commodore users will have no difficulty in adopting them. The main demonstration adventure, however, is reproduced as an easily-readable customised listing - one of them for the 64 or Vic

256KB users - although you can call up the graphic again if you want, say, to check for a visual clue. You can enter 'propos' sentences such as 'Give underbox to swamp lizard' (he ate it - which shows you what kind of home he has! Grey must have), or 'Say to Istar, Enter the burrow...' But cheats like myself must manage without a dictionary of the adventure's permuted vocabulary.



Heroes of Karr is from Interceptor and comes in a sturdy vinyl wallet with clear and adequate playing instructions at £9.95 on disk, £5.95 on tape.

Up and coming and in the shops in time for Yuletide gaming are a sequel from Interceptor to *Heroes of Karr* and a 64 version of Arnie's controversial *Ship of Dodes*, then there's *Castle Blackstar* and *Pyramid of the Sun*, both new adventures from CDS. A seasonal tangle with the ice age, *Midwinter* comes from Channel 6 and *Stranded*, a promising graphic adventure featuring a marooned astronaut, from English Software.

And there's more *Stargate* - an arcade quest is being released by K-Tel's new Frosty Runar label. And a new state-of-the-art animated adventure from Melbourne House is making its debut on the 64.

And who'll be the first to rush out an arcade adventure *Chestbusters* look-alike, now that the movie looks like outgrossing even Steven Spielberg?



... on to any title in your collection in which you'd like to incorporate it. Here's the listing:

```

50 REM INTRODUCE FOLLOWING LINES EARLY IN THE PROGRAM
10 PRINT "PRESS SPACE BAR TO ALTER TEXT/SCREEN COLOURS"
12 GET KS IF KS=100 THEN 120
13 IF KS>>CHR$(32) THEN 150
14 GOTO 500
15 REM PROGRAM CONTINUES
16 X=0
17 PRINT TAB(2)*"PRESS S KEY TO ALTER SCREEN COLOUR"
18 PRINT TAB(3)*"PRESS T KEY TO ALTER TEXT COLOR"
19 PRINT TAB(5)*"PRESS U KEY TO CONTINUE"
20 PRINT TAB(8)*"PRESS SPACE TO CONTINUE"
21 GET KS: IF KS=100 THEN 230
22 IF KS>>CHR$(83) THEN X=X+1
23 IF X>15 THEN X=0:
24 GOTO 540
25 FOR K=53280 TO 53291,X
26 IF D=159 THEN RESTORE
27 IF KS>>CHR$(84) THEN READ D:PRINT CHR$(147)
28 CEND$:GOTO 510
29 IF KS>>CHR$(32) THEN RETURN
30 GOTO 540
31 DATA 005,028,050,031,
32 ,128,144,148,150
33 DATA 181,152,153,154,
34 ,155,156,158,159

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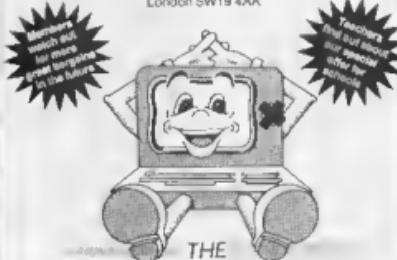
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Making sweet music

64 synthesiser packages reviewed

by Fred Reid

The Commodore 64 has always been a particularly attractive machine for games programmers, not least because it has such sophisticated and spectacular sound and music capabilities. Those tuneful melodies and weird sound effects that accompany your favourite games are all produced by the 64's diminutive yet powerful SID chip.

But actually using SID unaided can be inordinately difficult, especially since the 64's Basic offers no sound commands. So the easiest way to make your 64 play Beethoven (or make him roll over) is to buy one of the many synthesiser packages now available. Recovered from last month's introduction to synthesisers, Fred Reid has been looking at some synth offerings currently available.

Synth-64

Synth-64 is a program best described as a music and sound synthesiser/composer. It allows you to enter musical notes and symbols in a similar way to writing a Basic program - numbered lines, each containing a sequence, each containing a number of instructions.

Various other analogies with Basic are evident. For example you can set up sub-routines, loops, nested loops and GOTOs, and you can insert new lines between old ones.

But there are several notable differences - most importantly the 'look ahead' function. This feature allows the composer to scan through the text, looking for any command that it can execute immediately. This means that you can play up to three notes simultaneously even if they are not positioned together in the text. Don't worry, the new syntax is not difficult to get to grips with, and the manual explains all.

The waveform and wave shape of all three voices can be easily altered, and a whole bank of preset instruments can be set up. The filter and volume controls still effect all three voices, but these can be modified as often as you like during a composition by calling a subroutine. Other functions allow you to select the various filter modes, such as resonance, syncresonance, ring modulation, pitch modulation for filter and/or voice. This makes quite complex sounds (and noises) simple to produce.

Composing tunes

For the would-be composer, a complete set of instructions is



available. These allow music to be written for up to three voices, using all the traditional methods. Any of the 24 possible key signatures can be selected at any point in the composition, as can the 240 possible tempo settings. To play a note, you must enter the note value ('A' to 'G'), the octave (1 to 8) and length (1/1 to 1/64).

In addition, lengths can be dotted, notes can be tied, and so on. Rests for each voice can be set in a similar way, and the 'wait' function can provide pauses lasting for seconds. The only things missing, from a composer's point of view, are bar-lines and other accents.

Lastly, a round up of some of the other facilities on offer. No music program would be complete without some means of storing and retrieving your pieces, and this one has Load and Save commands for tape and disk. A 'tracer' function lets you watch the changes in pitch, and waveform, as it plays. And the structure of the music-program storage allows for easy editing. The program even lets you include Print commands in your music, and lets you link the music program to a printer - very useful!

Conclusions

Although the manual is generally well written, spelling mistakes abound, the print quality is pretty poor too. As the manual is about 40 A5 pages long and tightly packed (photo-reduced, Jaaywheel printing), an index or quick-reference section would have been nice, not to say essential.

One particularly annoying feature is the three sample

pieces. None of them even came close to the musical image I conjured up from their titles 'Eagle Hymn of the Republic', 'Polka' and 'Moonlight Sonata'. The program is so constructed, that you have to load the three aforementioned structures and play one of them before you can get down to your own composition. This is not only unnecessary, but almost doubles loading time.

To sum up, this program is limited both by its non-graphic representation of the music, and by the limitations of the 64 itself, which has only poor dynamic control, and produces background noise from the video circuits. But all that is compensated by the flexibility that Synty-64 allows. Still, programming a long composition is a long and tedious affair, but a dedicated effort can produce excellent results.

The Commodore Music Composer

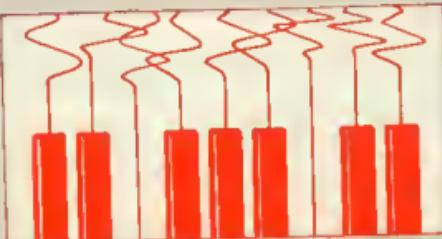
"Are you tone deaf? Do people cringe when you sing or play an instrument? You have just purchased your salvation!" That's the blurb that confronts you on the first page of Commodore's "Music Composer" manual, as if in defiance of all we know to be true. Can the program live up to this bold statement?

Firstly, Music Composer is cartridge-based, so it loads instantly without you needing to brew a cuppa in the meantime. Powering up invokes a title page with an invitation to press any key. That offer provides you with the main menu, and selecting option 1 from this menu gets you the sample song.

At this point, we notice the main feature of this package; the music scrolls across the screen from right to left, the notes appearing as you hear them. Although the use of smooth-scroll graphics is pretty clever, the feature is almost totally useless because monosynth (aspirin or otherwise) generally read about two bars ahead of the note being played or listened to.

Each note appears in a different colour according to which voice is playing it, although this feature can be cancelled if not required, and then all the notes appear in black.

A number of preset instruments are provided, and



can be selected from a secondary menu. These instruments include such audio delights as harpsichord and celeste (a kind of steam organ). Later we will discover how to create our own sounds.

Option 2 from the main menu turns the 64's keyboard into a piano type affair in the normal way, and as you play, the notes once again scroll across the screen.

Programming

Programming note sequences, as opposed to just playing, is achieved in a similar, yet less complicated way, to Synty-64. You start with a line number, and follow it with a string of notes, length values, octaves, etc. At any point, you can listen to what you have just written, or in the unlikely event of your program overflowing the screen, list it. In this way, you can edit in a similar fashion to Basic.

No composing system would be complete without a *load/save* option, and in this case, the medium is cassette, the option once again being selected from the main menu.

Under the heading of "Advanced Special Effects", the manual proceeds to describe how to make up your own sounds. Unfortunately, they forgot to allow you to store your sounds for future use!

The manual is slightly larger than "pocket" sized, and outlines the basic operation of the composer, and briefly explains some of the terminology not common to everyday use. The manual finishes up with a complete and useful guide to what keys do what.

Conclusion

To sum up, a simple little package, with one or two gimmicks but little educational value, and unlikely to remain a treasured part of your collection for long.

Ultisynth 64

Quicknews, Ultisynth 64's publishers, describes their package as a "sound processor" perhaps "sound processor" would better describe Ultisynth's nature.

The package is cassette-based and consequently takes about seven and a half minutes to load. It comes in a large plastic box with a skimpy booklet/manual - more on the later.

On loading, you're presented with a menu for selecting such essential options as *record*, *playback*, *load*, and *save*, amongst others. Selecting *record* produces the main display screen containing information relating to the sounds and notes.

Across the top of the screen is a table containing the ADSR (attack, decay, sustain, release) values and the waveform(s) selected for each voice. Next to the table are four dots arranged in a distorted diamond pattern; the significance of these I have yet to discover.

The lower half of the screen is split down the centre into two halves, containing horizontal bar-charts indicating the frequency of each voice, the tempo of each voice, filter frequency, resonance and others. Control over these functions is obtained by selecting any of the 154 key combinations. That lot makes constant reference to the manual pretty essential.

Playing and composing

In record mode, most of the unshifted keys play notes. And as you play each one, its value is displayed at the centre of the screen while previous values are scrolled left. These values are stored in sequence for later playback. The position of the next note in the sequence can be moved backwards or forwards to enable editing of the all too frequent duff notes you accidentally produce.

Pressing the space bar gets you back to the main menu. Selecting the playback option

takes you back to the previous display, with the only difference being that the notes are played back automatically at a tempo of your choosing. (If you can't find the correct keys!)

In compose mode, you enter notes via a vertical bar chart that scrolls to the left as you set each note. This I found particularly frustrating, as you can't hear what you are doing.

While in record or playback mode, you are offered a choice of six preset accompaniments for each of the other two voices, as well as a couple of user-defined options. These can be put to use by manipulating blocks of notes in memory using option 5 (transfer notes) from the main menu.

A facility to synchronize the start of all three parts is provided, but this does not guarantee they will commence at the same speed! This, along with the difficulties in remembering what key does what, makes the whole system very clumsy indeed!

As you'd expect, Ultisynth contains *load* and *save* options for cassette and disk. One slight problem here is if a disk error occurs whilst loading or saving a music file, like you forgot to close the drive door, the whole program crashes and you are faced with the daunting prospect of re-loading (seven and a half minutes), and worse - re-writing.

Documentation

The manual is approximately pocket-sized, and contains about 80 pages, including reference sheets to detach (and lose), a brief guide to sound and synthesis, and a fair coverage of the essential features of the program. Also included is a basic program listing to allow the inclusion of music created on Ultisynth into your own games. The manual has a detailed Contents page, allowing easy access to the interior, providing you know what you are looking for.

Conclusion

In my view, the whole idea of a program such as Ultisynth is to make the immense capabilities of the 64's SID chip easily accessible to the average user. Ultisynth attempts this but falls a long way short of being "user friendly".

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Multisound Synthesiser

Multisound is yet another cassette based synth package for the 64 that comes from Romik. The cassette arrives in an oversized plastic wallet together with a pocket sized 24 page manual - more on this later.

Loading Multisound takes an tolerable ten and a half minutes. You're finally presented with a control screen labelled 'special effects panel'. This panel contains information relating to Voice 1 and allows you to produce special effects such as vibrato etc.

Pressing V toggles between the special effects panel and the main control screen. The main control screen consists of rows of pseudo faders, operated by pressing the key named next to it. This system is one that I wholly approve of, as it resembles a 'real' synth control panel.

The main control panel contains only controls for one voice, namely Voice 1, the voice you are going to play with. Voice 2 is used exclusively for background tunes or rhythms, and are set up from the same control panel as Voice 1.

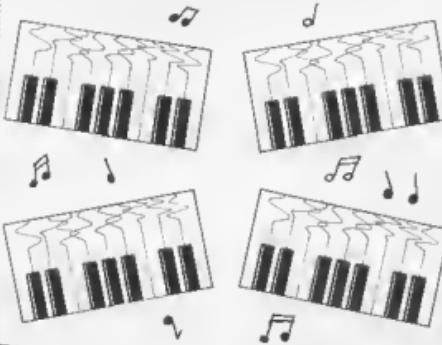
Playing modes

Various playing modes can be selected from the main control

panel. Pressing F gives you a piano-type keyboard on the screen. Pressing a designated key plays that particular note and the corresponding piano key changes colour.

Pressing S also gives you the piano type keyboard, but this time the computer records everything you play. Other facilities allow you to continue where you left off after visiting the main control panel, perhaps to change the sound slightly, or make use of Multisound's auto-space function. In this mode, the computer automatically spaces the notes out evenly at a tempo set from the special effects panel.

Of course, being able to record tunes is no good without



Under review

Supplier:	Syntech-64
Address:	Adamsoft 18 Norwich Avenue Rochdale Lancs 0706 524304
Telephone:	Dedicated effort can produce excellent results
Price	£9.99 (tape), £12.50 (disk)

Under review

Supplier:	Music Maker
Address:	Commodore Business Machines 1 Hunters Road Weldon, Corby Northants NN17 1QX 0536 205252
Telephone:	A simple little package
Price	£9.95 (cartridge)

being able to play them back. Playback mode 1 allows you to listen to what you've just recorded, and to alter the parameters from the main control panel while you hear the results. Playback mode 2 is identical to mode 1, but allows you to control the overall tempo with the < and > keys.

The background generator as previously mentioned, can be used to store short repetitive tunes or drum patterns, or alternatively, use one of eight pre-programmed patterns. These can then be played back while you record over them with Voice 1.

A useful addition to the excellent load/save routines is the merge function. This allows

you to load a tune from tape and append it to the tune in memory. Using this technique a long tune can be written in short sections, stored on tape, and then brought together.

The manual

The manual is a stiff-backed booklet, arranged in seven chapters. The first chapter gives a brief introduction to Multisound, and a description of some of the terms used later on in the manual. Chapters two and three give a brief introduction to synthesiser techniques and the nature of sound. Chapters four to seven describe in detail the Multisound system, and how to use it. Two appendices describe how to set up certain sounds, while a third gives suggestions for further reading. In short, the manual is everything a manual should be, and, being short, it is very easy to find the bit you want.

Conclusion

To sum up, Multisound is professionally packaged, and easy to use. The facilities offered are rather slim, but there is nothing noticeable missing - other than a turbo loader!

Under review

Supplier:	Ultisynth 64
Address:	Quicksilver PO Box 6 Winborne Dorset BH21 1PY
Summary:	Good facilities but not very 'user-friendly'
Price:	£14.95 (tape only)

Under review

Supplier:	Multisound Synthesiser
Address:	Romik 272 Argyll Avenue Slough Bucks SL1 535
Telephone:	Easy to use but lacks facilities
Price:	£14.99 (tape only)

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James

The 64 ought to be an excellent computer for games - and fortunately some suppliers are indeed taking advantage of that. Others aren't. Here's this month's crop of reviews.

How do we assess games? Basically we play them - which may sound obvious, except that all the reviewers have seen so many games that they can apply a bit of comparative experience to the evaluation.

We rate games out of five for each of four criteria. **Presentation** means how well the thing is packaged and how good it looks on the screen: dull graphics and poor sound get marked down here. **Skill level** refers to how much skill (of whatever kind) is required to play the game - so if pure chance is involved, the game gets a low mark. (But don't dismiss it on that: some 'chance' games are great fun.) **Interest** is an answer to how well the game did at maintaining the reviewer's interest in it. And **Value for Money** is obvious enough: it's our overall conclusion about how it compares with other games and whether we'd buy it ourselves.

BIZY BEEZZzz
Joystick or keyboard
Price £7.95

Poor Teddy is lost in the forest right on the way to the teddy bear picnic. He has discovered a huge bee hive full of honey and as he is beginning to feel rather hungry he has to guide him through the 16 screens of ladders, lifts and moving platforms to empty the honey pots.

Unfortunately bees don't take kindly to teddy bears invading their hives and making off with their honey and are therefore very prone to sting if you can't move Teddy quickly enough. Very fast moving with good graphics and an excellent selection of tunes.

WG/PR

Solar Software

Presentation: ****
Skill level: *****
Interest: ***
Value for money: *****



BLUE THUNDER
Joystick or keyboard
Price £6.95

As the sole survivor of a once mighty invasion force you must skillfully pilot your Jetcopter through a bombardment of electronic storms, ground and sea-based missiles and attack from around barrage balloons. If you



survive this lot you must then destroy the unstable nuclear reactor to rescue your comrades who are held captive beside it. Fortunately, the printed instructions include a diagram on how to blow up the reactor as this is not as easy as you might think.

Once you have completed a successful mission you will be debriefed and after a short rest be assigned to yet another demanding mission. It's a hard life, piloting Blue Thunder! Good graphics and somewhat addictive!

WG/PR

Presentation: *****
Skill level: *****
Interest: *****
Value for money: *****



Blue Thunder

I asked *A&F* about that as I don't have the next two years free) problem and challenge.

Apart from being pecked to death it is very possible to come to grief by falling down a lift shaft - oh yes! Lifts are an essential ingredient and add to the fun/irritation.

I'm afraid there seems to be a fly in the ointment ... it doesn't seem possible to skip some of the early levels which of course can lead to the "oh no back to the start again" syndrome. So keep gaining points to earn extra lives. A quick load system boosts the presentation mark.

LS

A&F

Presentation: *****
Skill level: *****
Interest: ***.11.
Value for money: *****

CHUCKIE EGG



CUTHBERT IN SPACE
Joystick or keyboard
Price £8.00

This is a tale of plunder, involving pillaging goodies from hapless civilisations throughout space. There are two screens. Incidentally, Cuthbert has to pilot a shuttle to pick up fuel pods, ferrying each one back to the mother ship before collecting another. Whirling "pro-pellers" whiz across the field of play at variable speeds; these must be avoided or blasted.

The longer you hang on to a shuttle (i.e. a life) the more numerous

CHUCKIE EGG
Joystick or keyboard
Price £7.90

The chief delight of this ladder/platform conundrum lies in simply reaching out-of-the-way places in search of the corn and eggs needed to reach the next screen, whilst cooking a snoop at the prowling ducklings. However adept you become at coasting through the eight screens, when big Ma duck breaks free on level nine it's time for a re-think on the soundness of your tactics.

Delicate hops, delf jumps and evasive actions are very much the order of the day. Definitely for the platform-jumper enthusiast, as the graphics and sounds can only be construed as adequate, but for mastery of the course the 256 levels



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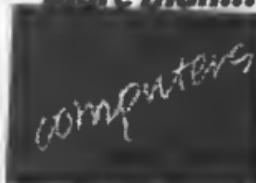
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James

The missiles become When sufficient fuel is on board it's time to select the apparently extremely durable objects raining down from the sky, still riding-on the one defensive system, until the you get too hot and discretion becomes a departure for pasture.

The pattern is frequently punctuated by an unusual phase briefly, you need to match one set of co-ordinates with another then return to the final value. The catch is that the numbers are increased/decreased by using a different track/cancer control each time. Obviously a life depends on completing the exercise within a given time.

Twelve levels (you may skip the last seven) should provide challenge enough for any budding Cuttler. Very colourful, but little in the way of spectacular graphics and sound. LS

Mimicool

Presentation: ****
Skill level: ****
Interest: ***
Value for money: ***

DICKY'S DIAMONDS

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We have a deceptively hard teaser we contend around a spider's web being a remarkably small owl you find it's easy to ran along the strands of silk, eliminating them as you go, until the whole web is destroyed. But you can fly from one section to another should there be no connecting thread left intact. Why should you do this? Cos the spider has nicked your diamonds and hangs one on display slapping in the middle of his silken net - travelling it is the only way to remove the jewels.

The spider unfortunately, does not to make running repairs that could well be a sign of laughi tactics on my part. I managed to succeed and flew off with one diamond, plenty more left, as always, with no spiders to contend with later in the game.

The last thread to be removed must be a central one otherwise we're just a spectacular structural collapse but no game over.

Plenty of options to mull over speed, starting level, unlimited flights (or just the total allowed for in the current screen), second user, plus the ability to save the

high score to tape. Fair scores including Flapping wings and a nice theme with a couple of neat visual effects. LS

Ronak

Presentation: ****
Skill level: ****
Interest: ***
Value for money: ***

DICKY'S DIAMONDS

FOR THE COMMODORE 64



A REAL ACTION SHOT OF THE GAME

FELIX IN THE FACTORY

Joystick only
Price £6.95

The tried and tested ladder/maze features once again. Indeed there is nothing original in the program, but like all good recipes, the ingredients have been well chosen and skillfully blended to present an appealing offering which will have you clamouring for second helpings. The man-of-the-moment is faced with the task of toppling-up a generator with oil. True to form the oil-can is anywhere but in a convenient position; so it's a dash along the conveyor belt, jumping over parcels, and up the ladders to the upper floors of the factory.



Grenmins (up to three species) are on the prowl presenting you with the choice of evasion or trying your luck at impaling them with a pitchfork. The odd, squealing super-set tends to dash across any floor at random necessitating a perfectly timed jump; you may even poison him for a bonus. Failure to stoke the generator within the allotted time costs a life as does carelessly bumping into a monster. But tumbling over a parcel merely deprives you of the oil-can you might be carrying, plus precious time.

As far as I can see there is just one screen, although success ushered in further supplies of meanness to provide variation. The author has succeeded in producing a challenging game. Should you require only one example of the ladder/maze idiom then a good version of Kong will provide greater depth. LS

Micro Power

Presentation: ****
Skill level: ****
Interest: ***
Value for money: ***

COMMODORE 64



GILLIGAN'S GOLD

Joystick only
Price £6.95

Ocean Software continue to produce excellent games, and Gilligan's Gold is no exception. The objective is to help Gilligan collect bags of gold and place them in the wheelbarrow before time runs out, whilst at the same time outwitting the outlaws who are after you - and the gold. Each bag you collect gives you more time but they do slow you down. To avoid the outlaws you can jump on the trucks (by hanging on to the hooks) or escape via the ladders and ladders, but do watch out for the mine shafts they're deep and deadly.

Good graphics and a catchy tune add up to another enjoyable Ocean game. WGPR

Ocean Software

Presentation: ****
Skill level: ***
Interest: ***
Value for money: ***

GYROPOD

Joystick only
Price £6.95

A two-screen cosmic-combat pan-borase featuring a novel depiction of a space ship. The game opens with a module (you're inside) docking with a doughnut-shaped mother ship, which is shown in three quarter view perspective. By now you have taken control of the blue, double-barrelled gun turret which can be zoomed all around the outer circumference of the ring.

Thanks to the magic of sprites you can see the position of your blaster even when on the reverse side of the battle ship's rim. To annihilate the oncoming, gyrating UFOs, fire will have to be directed from all edges of the silver craft.

Run out of ammo? Or perhaps the shields are weakening? If so catapult down to the nearby planet (the same one that's due for the chop), taking care to ease-up and land gently, grab some supplies whilst warding off the aliens with your sun pistol, then hop back in and blast off.

When all the UFOs have been despatched and their planet is warped into eternity, it's time to tote-rotas another civilisation with their own ideas as to how space should be designed. So it continues through four waves of alternating mass devastation and hand-to-hand confrontations.

Strong on sound, as it seems everything from Taskset is going to be, with the potential side showing flair and imagination. LS

Taskset

Presentation: ****
Skill level: ***
Interest: ***
Value for money: ***

HOUSE OR USHER

Joystick only
Price £6.95

Cot a few months to spare? If so, and you relish such impossible

(Handwritten)

challenges than this could be your red-letter day. Don't be fooled by the entrance hall, enter any one of the eight doors and you face such obstacles as cannon balls disappearing floors, pounding pistons, monsters and various other bizarre, highly improbable obstacles. This is the stuff that joystick acrobats thrive on.

On this impressive title screen you arrive at the creepy mansion and climb the stairs to the door. I couldn't understand the relevance of the particular accompanying music, but what the heck? If you ever manage to wade your way through the eight rooms jam-packed with seemingly unsurmountable hurdles, the door to the treasure chamber is opened to you, to be followed by revelations as to the meaning of life, or something similar. Honest, it's really tough... well... extra tough. And the faint-hearted shouldn't touch it with a barge pole. LS

Anrog

Presentation:	*****
Skill level:	*****
Interest:	*****
Value for money:	*****

ICE HUNTER
Joystick or keyboard
Price £6.95

Another fast-loading program - the software companies are really getting the idea now. Thorak, Prince of Ice, has made his way into the multi-level cave. Now all he has to do is collect the blocks of ice necessary to build a very special igloo. However, the path of igloo-building is not that straightforward and Thorak has to fight off some very strange creatures, the first of which is a dragon-like beast wandering about the first three levels. Kill it either by dropping a block of ice on its head, or when the occasion arises, and after eating a power pill, by crushing it underfoot.

Thorak can drop his ice blocks through patches of thin ice which will only bear his weight once; to move from level to level he must use the support pillars. Once he has travelled from the kingdom of the dragons, he reaches the long den of the strange mutant sea-horn species, and he can go back to collect any blocks left behind or to escape the sea-horn.

Finally Thorak (no doubt exhausted by now - I certainly was!) has to float the blocks down-

stream to his igloo for storage. Then he has to return to another cavern to gather more blocks. Not unnaturally, Thorak faces greater and more threatening dangers in his efforts to build his dream igloo.

Good graphics, very little in the way of sound, but all in all a good game. The ice effects are so realistic; my fingers felt quite cold whilst manipulating the joystick! WG/PR

Anrog

Presentation:	*****
Skill level:	*****
Interest:	*****
Value for money:	*****

ANIROG



MR DIG
Joystick or keyboard
Price £8.00

This is (unfortunately) very similar to Pac-Man in its somewhat basic approach. Mr Dig must dig for hidden food supplies in the Meanees territory below ground. As he digs he can eat his way round cherry groves whilst being followed and attacked by the Meanees which can be crushed by dropping apples on them. Meanees can't dig tunnels or eat cherries, but watch out that they don't change into miners, which



MICRODEAL



can both. Every so often a fallen apple will split open and reveal a sparkling diamond - collecting this increases your score immensely.

Also introduced into the game are mallars (mallards?) and a letter monster. You can destroy the mallars individually, when they will mutate into apples, or they will disappear when the letter monster is destroyed. You can destroy opponents either by launching your power orb or by dropping apples on them!

There are nine levels of play from Baby to Masochist, so there should be a level to suit most people. WG/PR

Microdeal

Presentation:	*****
Skill level:	*****
Interest:	*****
Value for money:	*****

NURSERY NIGHTMARE
Joystick only
Price £7.50

Not a blockbuster but an extremely enjoyable, simple game with five levels of genuine increasing difficulty - the situation changes, not just the tempo. Everything revolves around your attempts to keep your offspring bloated with milk. The screen is divided into three lanes, separated by green lines; you, the harassed husband, may cross them with impunity. But if you attempt to take baby with you, on storms the apple of your eye to bonk you on the head. She will also appear if you drop your infant on the floor or

fail to return with the milk in time.

You will need to carry the baby to the top of the screen, release it, zoom across to pick up a bottle, then backtrack in time to catch up with the infant who is tumbling toward the foot of the screen. No time to lose!



as the countdown has expired, back to the top and make for the next bottle.

Level two sees the milk money as well as the toys while the arrival of skill forces you to cross two lanes. It's just like running across the M1 and back again. Obviously timing, anticipation and sharp reflexes are needed. Nothing special about the graphics nor the sound which just complements the action. Refreshingly uncomplicated entertainment.

Cable Software

Presentation:	***
Skill level:	***
Interest:	***
Value for money:	***

Crane

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ORC ATTACK

Joystick only

Price £7.95

The Orcs are coming! They are scaling the castle walls and trying to stab you with their murderous daggers. A crossbow bolt slips past your left ear - but are you afraid? No! You are Sir Eric the Brave, while Orcs will not get the better of you.

Armed with rocks, boiling oil (very nasty!) and your trusty broadsword, you must fight the Orcs until the last one is dead. But even then the castle is not safe - the evil Sorcerer appears and commands his spirits to attack you. You may survive and slay him, but now the dreaded Stone Worms are after you. It's a never-ending task, defending the castle these days!

Fall sound and good graphics make this an enjoyable game, though the picture on the package represents the cast. And they ask if you want a free poster version of it as well.

W/GPK

Creative Sparks

Presentation:
 Skill level:
 Interest:
 Value for money:

ORC ATTACK
YOU AGAINST THEM

PESSY PAINTER
Joystick or keyboard
Price £6.95

The first screen discloses four pale guards pursuing the painter-chappie, making sure he prepares the surfaces instead of just stopping up the job lot. You have to out-think and out-run them until you've treated every corridor, cleaning up the whole caboodle. When the four cameras have been coloured in, the guards turn to skidaddle, adding bonus points, if you catch them, to your score for each completed square.

A brief intermission for the house screen, guides the creature to a bunch of bananas, then down to business. Your chance to paint, now that you have turned into a paint brush. But each room has to adjoin a previously painted area. To help you avoid the mouse-like pursuers (three fire crackers are at your disposal) Success takes you back to a harder screen one, one extra guard and naturally a change of colour scheme.

Musically speaking the contents are very similar to Paramount's Outback 64, which is a fair recommendation.

SuperSoft

Presentation:
 Skill level:
 Interest:
 Value for money:

TURTLE JUMP

Joystick only

Price £6.95

What a dinky game! You are a giant ant living on a treasure chart, on an island in the centre, to be precise. Naturally you feel compelled to travel to the outlying land masses, to Eldorado in particular. Of course the journey isn't easy; you can jump short distances across logs and magnetic islands but the main method of travelling is to hitch a ride on a turtle. You have to keep with them, or splash away one life, and be prepared to swap reptiles in mid-stream in order to make progress.

Their direction changes in response to obstructions, but beware of the crocodile which causes the flotilla to crash dive. Having arrived at the treasure chest make sure that you don't get squashed by the lid by spending too long grabbing the gold. On the way back to base you may dream it advisable to make a detour to stoke-up your energy levels by gobbling bonus fruits.

Precise joystick control, with an appreciation of just how far you can leap, is a must. The peculiar sound effects enhance an interesting, though uncomplicated game which is bound to grow on anyone who doesn't demand incessant mayhem.

LS

Presentation:
 Skill level:
 Interest:
 Value for money:

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Typing Wizard

Keyboard only
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Although not a game, we've decided to include Typing Wizard here as somebody somewhere may conclude typing is fun.

Have you ever been ashamed to put your two fingers to the keyboard, having witnessed a dragging fest of ten-fingered touch speed? Well, now help is at hand - you can improve your typing prowess in secret, using this patient tutor from Severn Software. In a series of lessons, ranging from the home keys to the whole keyboard, you are shown a graphic keyboard, with your fingers resting where they should be. You must type exercises exactly as shown on the screen, the computer keeps and rejects any wrong keys. The lessons are single letters, followed by groups of letters. At the end you are told how many errors you made, and your average typing speed. Also included is a speed test - you simply choose your own text, and type away. The 'Copy-what you see' exercises will also help keep your eyes away from the keyboard, a good discipline.

One niggling point, though the program uses F7 as its Command key, which can be awkward when you're at the start of a lesson, setting up your fingers as instructed. Having just arranged your fingers correctly, you must then remove your hand and press F7 to continue... Nevertheless, the program should prove useful to those of you who need to become proficient typists. DW

Severn Software

Presentation: ****
Skill level: n/a
Interest: n/a
Value for money: *****

For C64: I'm new to Commodore 64, so I need to get started quickly up the learning curve. A Scholastic Working with words is a great way to do this. It's simple, it's fun, it's easy to learn, and it's great for the kids. I've bought a few books from the store, but I've never found one that's as good as this one. It's a great book for anyone who wants to learn how to use the Commodore 64.

VALHALLA

Keyboard only
Price £14.95

At last, Legend has released Valhalla for the 64. I say at last, because it made Game of the Year on the Spectrum. But this new version not only equals, but improves upon the original. Apart from running faster on the 64, the characters are now in colour - and there is a 'mono' command for those with monochrome monitors and TVs, which selects a more limited, but easier to see, colour scheme.

For those who don't know what all the fuss is about, I shall attempt the impossible, in describing Valhalla in one paragraph. It's a real time adventure game in which the players must hunt magical objects. As you roam through the graphically depicted locations, you can gather food, weapons, armour and other such items along the way, which are vital to your survival. The player and any other characters nearby are presented by little animated figures which move, fight, eat, drink and generally act out the adventure as described by the text.

As the game is in real-time, even if you didn't do anything, the other characters aren't idle, and will come and go as they please, often fighting amongst themselves - and with you, depending on their opinion of you. One thing about the 'animation' taking place all around you is that you may actually have to wait a while before the computer processes your command as you must wait for events such as fights and deaths to end. As the player is depicted on the screen, it is possible to move left and right - to reach a bottle of wine, for instance - and not just the normal N-S-E-W of other adventures. If you issue a command such as 'Get Sword', you will see the player-character do just that on screen.

I have only scratched the surface of the complexities of Valhalla. I could write a book just describing it - indeed, the instructions provided with it are themselves on the meaty side. The what-you-see is what-you-get approach to the accompanying graphics is an interesting approach (they call it 'MOVISOFT').

In conclusion, I hardly have to add that this is a complex, well thought-out adventure, which will keep the most unrepentant of adventurers amused for many hours of good adventuring. Happy adventuring! Legend

DW

Presentation: ****
Skill level: ****
Interest: ***
Value for money: *****

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Commodore 64 Machine Code Ian Stewart & Robin Jones £6.95

The Commodore 64 is a superb and versatile machine. It's ideal for you to learn how to program and manipulate your computer.

Bored with BASIC? Then why not learn how to machine code the Commodore 64? This book by the team behind *Mastering Machine Code* will teach you everything you need to know about the machine code language, how to write programs in it, and how to make them run. You'll be creating, writing, editing, and even graphics displays.

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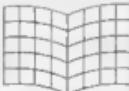
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Commodore Français – frenchify your Vic or 64

by George Pike

I'd up with boring old French text? This seems like a good job to sub-contract to the computer. English is no problem; but what do you do about those tricky French accents? One way would be to chicken out and work entirely in capital letters. No accents required then, but that's hardly helpful.

Once you've discovered user defined graphics, it's easy enough to design the accents and put them into the computer. But then the question is how to get them in the right place and get rid of them from the wrong place. And wouldn't it be nice to put them on the function keys - four keys for three accents and the cedilla?

Then Tommy came to the rescue; he gave me the idea of using GET statements to feed words into the computer rather than INPUT. The disadvantage is that there is no flashing cursor. The advantage is that each letter and string is put in and stored separately and the word built up after RETURN has been hit. Accent strings consisting of the defined graphics and necessary cursor controls can then be assigned to the function keys by a set of four lines, for example IF X = CHR\$(33) THEN Y\$ = "AS" (as being one of the four accent strings).

Before starting on the program itself, here are some practical points.

Some points for VICTIMS

The programs only work with the unexpanded Vic or with either ZX expansion or the Super Expander. The actual Frenchifying uses up most of the unexpanded Vic so one of these cartridges is virtually essential for a practical program.

With the Super Expander, either assign the strings to other keys or disable the function keys before starting to LOAD or program To disable the keys, type in **ST564850: POKE 641,0; POKE 642,4; POKE 643,0; POKE 64,30; POKE 648,30; STS 64824 and RETURN.** Again, thanks to Tonny. The screen changes to show **564 BYTES FREE** and the function keys are all free.

If you're going to use the Programmer's Aid Cartridge, the function keys are a pain. Assign the strings to other keys. To do this, simply alter the **CHR\$** numbers. The values for each key are in the users' manuals. They can be assigned back to the function keys immediately before the program is SAVED.

The 64 Screen

What mansac chose the colours of the 64 switch-on screen I do not know. Line 100 is simply to make the text legible. Please yourself.

And remember, **SAVE** before you **RUN** user defined programs Once Stage Two is working, it is time to add the user defined accents, that is the 200+ and 300+ blocks **SAVE** before you do this and **SAVE** again before you **RUN** the program. One error in the 200's can crash the 54 and all that has gone before is lost - more amazement.

Allons x

Do not be alarmed by four listings. They follow on from each other, building the final program up in stages to demonstrate the routines used. By leaving the 'real' accents to a later stage, a lot of time is saved when RUNNNG to test and explore intermediate stages.

Stage One: just follow the program listing. The **M** in line 330 is not needed yet but it is safer to include it now. As each

Stage One listing



Map of France. Britain's nearest neighbour in Europe.

Victuys

letter is fed in at line 810 the letter count is advanced by one. The DELete key functions normally and RETURN is used to signal that the word is complete.

So far just like INPUT without the flashing cursor. But with one exception, the word is not yet built up. That is done in line 280. The first word is W\$(), the second W\$(1) and so on. LS and WS must be DIMensioned in lines 400 up to the maximum number of letters in a word and the maximum number of words to be fed in.

Type the program in and RUN it. Not sensational but a start. The computer should ask you to type in your word. Do this and when it is correct hit RETURN. There should then be a list of words typed in so far and an invitation to press a key to add to the list.

Eventually the program will operate in 'Typewriter' mode. This means that any letters that are finally to appear as capitals must from the beginning be typed in as SHIFTed characters. Looks a bit odd at this stage, but so what?

Stage Two: now we come to the important bit, the accents. Or, at this stage, 'sort-of' accents but never fear accents they will be in due course.

Stage Two is simply Stage One with some lines added. Type in the extra lines and amend line 916. Lines 90, 308 and 910 can be removed now. Lines 410-440 contain the accent and accent delete strings. The accents are going to be on Commodo's e-shifted X, C, V and B and for now those graphics symbols will be used as accents.

Accents don't need to be printed an extra space out. In fact one of the things an accent string does is to pull the character back a space. We must then count two things separately, the number of letters and accents and how far out to print. N counts how many and M how far.

The program works very much as Stage One except that the function keys put strange graphics above or below letters. Have faith, they will be accents soon. Press the function key after the letter which the accent or cedilla is to go over or under.

Once this stage is working, it is time to **SAVE** the program. Now to business, the computer is to be Frenchified.

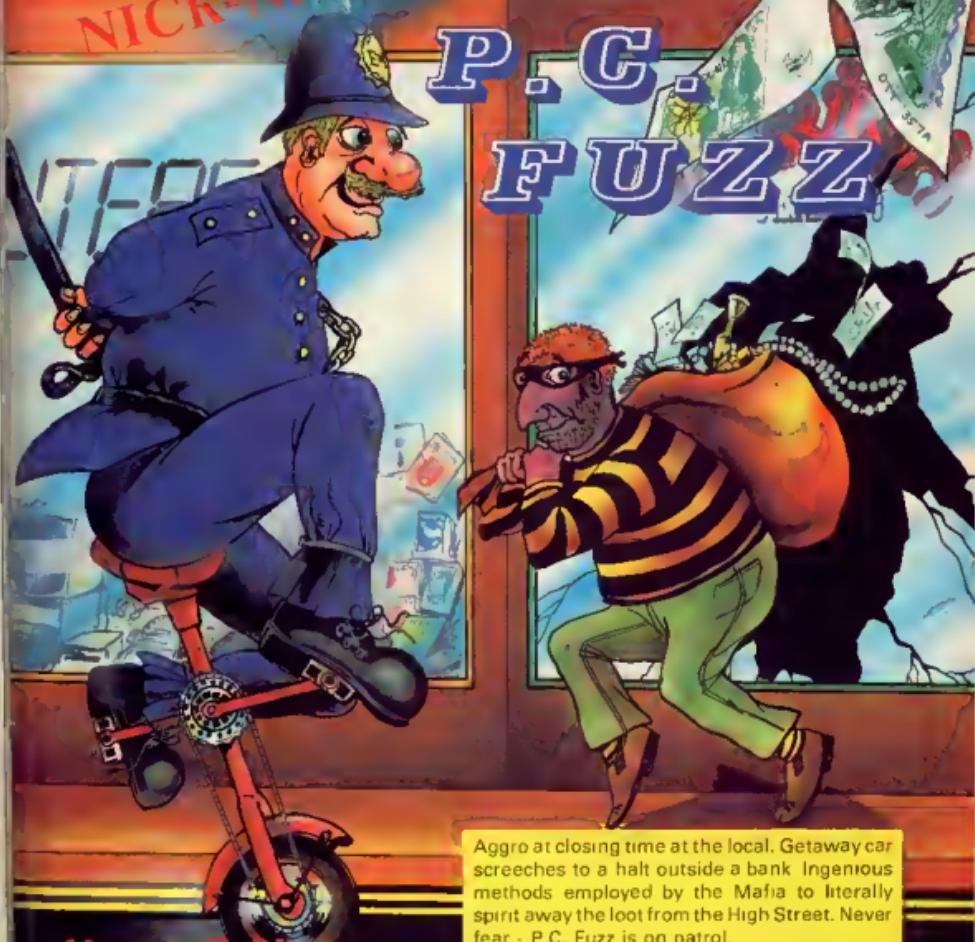
Stage Two listing

Stage Three: Infing

ANIROG

NICK-NICK!

P.C.
FUZZ



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Victuals

Stage Three: the principle being is for the 84. For the Vic replacement lines are given for lines 290-310. The DATA lines are the same for both computers. Type in the extra lines and SAVE. With the 84 one error in the 290's and 300's can crash the computer and lose the lot.

In the 200- and 300-blocks, user-defined graphics create the three accents and cedilla and PEEK and POKE the "typewriter" keyboard from ROM to RAM.

Finally RUN the program.

Chaos will appear on the 64 screen and slowly bring itself to order. If there are no mistakes you will shortly be invited to 'Type in your Word'. Accents are now accents. The computer is in 'Typewriter' mode, spades have become A's and hearts S's, SHIFT produces capital letters. Your computer is franchised at last.

The Final Stage

French Word is not particularly useful except to show how the computer can be franchised. The more useful programs work in pairs of words E3(1), F3(1), ... These are put into the computer and when all the strings have been entered the E3's are displayed one by one and the French demanded. The entry is then compared to the appropriate F3.

So now we must type in our words in pairs. First we must tell the computer how many pairs there will be and DIMension enough strings to accept them, lines 420 and 460. Because we might re-run the program with a new longer list and need to Clear and reDIMension, all DIM statements should now be moved to line 460 Remove line 400 to avoid a **REDIMENSION ERROR**.

Line 480 sets up a loop to take in the word pairs. Lines 550 and 600 take them in and when this is finished, Line 610 sends us off for a test on them.

To print our entry words on different lines and make two sets of word strings calls for some changes in the **\$06** and **\$00** blocks. Thus line **\$00** becomes

We need an empty word string in which to build our word. The contents of W\$ are transferred to the string to be stored once the program has RETURNed.

Vic replacement times for Stage 3

FINAL LISTING



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Victus

Line 910 becomes two lines

```
905 PRINT (BOM)  
910 FOR PD = 1 TO F:  
    PRINT"(CUD)": NEXT PD:  
    PRINT SPC(M+2)";SON)
```

Finally Mrs. Sato becomes

```
380 FOR D = 1 TO N-1:  
    W$=W$+LS(D):NEXT D:  
    RETURN
```

The word pairs are now installed. Now for the test. Line 610 has sent us on our way. Lines 1000 to 1640 are no longer needed. Lines 2000 to 2110 are the test. 2010 chooses the pair for each question, 2020 and 2030 make sure we haven't had that pair before. Each pair then is included once and only once in random order. Lines 3000 to 3600 give simple options to end, re-test or start a new test.

This is simply a skeleton for a French test. One obvious area for development is in responding to wrong answers. There are all sorts of possibilities to include time, scoring how many right first time, keep a record of the best time and name the current champion (watch CLR and DIM for that one). It all makes good use of the computer and may even lighten your chores. Bon chance.



Keybeep

by Fred Reid

This program produces an audible beep from your TV whenever you press a key on your Commodore 64. This is particularly useful when copying software from magazines; you don't have to look at the screen to verify that you actually pressed a key. As each key produces a different tone, you can soon get to recognise a wrong keystroke.

The routine runs entirely in machine code, and is located at \$C000 (49162 decimal), and occupies only 120 bytes - so it's small enough to insert into your own programs.

The machine code program is split into two parts. The first part is used to set up the SID chip, and change the interrupt vectors to point to the second routine at \$C037. The second routine examines the current key being pressed and uses its ASCII value to provide the pitch information for the SID chip. If a key is being pressed, the Gain bit (3D404) is flipped on, then off, to start the note. The routine then jumps to where the interrupt vector originally pointed to (before the first routine altered it), and the computer continues as if nothing had happened.

When run, the Basic loader reads the DATA statements, and POKEs them into RAM. When this is done, the initialising routine is called by **SYS49152**, and the Basic loader is NEWed. At this point the beep can be enabled by pressing F1. Pressing F3 will turn off the beep. If you press RUN/STOP and RESTORE, the routine will have to be re-initialised (**SYS49152**) before it will work again.

- Assembler listing

```

L001    79      SEI
L002    40 11 0F    LDY #198
L004    40 2E 01    STA 49162
L005    40 2E 01    STA 49162
L007    40 25 03    LDA 49162
L009    40 26 03    STA 49162
L00A    40 37    LDY #42
L00B    80 14 03    STA 49162
L00C    A0 17    LDY #40
L00D    80 42 03    STA 49162
L017    C7 38    JSR 4480
L019    A0 00    LDY #0
L01A    90 00 04    STA 49162
L01B    40 14 03    STA 49162
L01C    A0 00    LDY #0
L01D    90 00 04    STA 49162
L01E    40 14 03    STA 49162
L01F    A0 00    LDY #0
L020    90 00 04    STA 49162
L021    40 14 03    STA 49162
L022    80 05 03    STA 49162
L024    90 00    LDY #0
L025    40 14 03    STA 49162
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Print cassette tape covers

by Albert van Ascht

One of the handiest applications I have found for my 64 and the printer is to print covers for my cassette tapes. As I have a few tapes (over a hundred, in fact), I decided to write a program to produce neat covers for them.

It just so happens that the 40x25 line screen is exactly the size of a cassette cover when printed on my Seiko 100VCI (aka Commodore 1303). How's that for unplanned standardisation? Of course, the program can be adapted to format, change and print any screen.

Lines 100 to 300 give the basic lay out - you can change it to suit your own ideas. The POKE3023,125 in line 300 is merely to place a "L" symbol in the bottom right hand corner, so as to avoid the line feed of PRINTING it.

Lines 10 to 15 are the 'cursor' routine. The current position is PEEKed and the character is stored in C; then a block is POKEd in the same position, followed again by the character. This causes the cursor to flicker.

Lines 23 to 40 check the cursor controls, lines 60 to 80 put the character entered on to the screen. Line 21 checks to see if F1 was pressed; if so, control is passed to subroutine 10000 to print the screen.

I have found it very handy and neat to have all my tapes with uniform covers. If any changes, I simply run the program again and type in the new names.

Just one other thing: no provision has been made for Insert and Delete - you have to re-type the whole line if you made a mistake. This is not as bad as it sounds, because it is, at the most, only 40 characters.

CHART UPDATE

CBM64

1	(-)	Decathlon
2	(1)	Seach Head
3	(3)	Arahian Nights
4	(-)	Micro Olympics
5	(-)	Dolan's Decathlon
6	(4)	Encounter
7	(8)	Loco
8	(-)	International Soccer
9	(7)	Blast'er
10	(2)	Valholla
11	(11)	Sole Flight
12	(14)	Son of Biscar
13	(15)	Caverne of Khefke
14	(-)	Starp Poker
15	(13)	Manic Miner
16	(5)	Covilon
17	(-)	Treshmen
18	(-)	Harrow Bavar
19	(-)	Wimbladen 64
20	(-)	Forbidden Forest

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US GOLD
ALLIGATOR
ACTIVISION

OCTOBER

1	(1)	Activision
2	(6)	US Gold
3	(3)	Interceptor
4	(20)	Optobase
5	(-)	Ocean
6	(-)	Norwegian
7	(17)	Alligator
8	(-)	Commodore
9	(16)	Alligator
10	(11)	Legend
11	(-)	US Gold
12	(-)	Alligator
13	(2)	US Gold
14	(-)	US Gold
15	(8)	Soft Projects
16	(-)	Ocean
17	(-)	N Generation/OS
18	(-)	Hiemsoft
19	(5)	Merlin
20	(9)	US Gold

VIC-20

1	(1)	Flight Path 737
2	(6)	Vegas Jackpot
3	(3)	Charlet Race
4	(-)	Punchy
5	(-)	Undermine
6	(-)	Hell Gate
7	(17)	Sub Noot
8	(-)	Max
9	(16)	Wiz and Princess
10	(11)	Dusk Sheet
11	(-)	Tower of Evil
12	(-)	Computer War
13	(2)	Jet Pos
14	(19)	Luv Buz
15	(8)	Bongo
16	(-)	Motrix
17	(-)	Minitron
18	(4)	Arcadie
19	(5)	Flight 015
20	(9)	Tank Commander

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A collage of various musical instruments including a trumpet, drums, a guitar, a piano, and a violin, arranged diagonally across the page.

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Database flies on to disk

Micro Magpie reviewed

by Karl Dallas

The Magpie database for the Commodore 64 was originally written as a cartridge-based program, and very powerful it was too. Not cheap of course, but still worth the money – even at just 5p under £100.

Now Magpie's supplier, Audiogenic, has released a version of Magpie on disk. Called Micro Magpie, it costs just £39.95 which makes it probably the best value database on the market. Karl Dallas has been putting it through its paces.

The advantage of cartridges, of course, is speed and if the disk version of Magpie had to constantly access the memory saving would be more than offset by the loss in convenience. But the program (16K of it) is held entirely in memory and after it has been LOADed (taking about 45 seconds) it is no slower in operation than the cartridge version.

If you're the sort of person who is so anxious to get to work that you can't spare much time, then it's probably worth £60 to you to get the cartridge but otherwise I can see the disk version of Magpie sleeping all below it.

Despite the 'Micro' label which might suggest some kind of diminution the new version is actually more powerful than the original, especially in the search parameters.

Basics

Magpie is squarely menu-based, which is great for the beginner, because all the available options are made available to you every time you want to make a choice. You use menus to employ the 'procedures', or programming language, which allows the user to personalise the way a database is used, and make it even easier for the non-technical assistant or secretary access.

The drawback of menus, help-screens and other user-friendly devices, is that as you get into the way they work, you no longer need so much help, and the program becomes rather like a kind of fussy nut, always at your shoulders being more helpful than you need.

The more sophisticated programs will offer you different levels of help as you progress in experience, so that you can avoid its syndrome, but it would be un-

reasonable to expect a £40 program to be that flexible.

There are a total of 23 menus, which are arranged on a tree structure from the opening live-option menu.

In addition to its work as a database, Magpie contains 16 resampling capabilities, either from typed in data or by taking data from files. And it comes with two sample programs: a simple mailing list (which for obvious reasons all databases usually take as an example), and a more complex stock control application, including the processing of invoices, purchase orders and credit notes.

Setting up

The program is LOADed in the normal way by typing

LOAD "M&I"

which LOADs and RUNs the loader, and consequently the main program file. A title 'page' is displayed during the LOAD, and the user is asked if a single 1541 disk drive is used. If 'no' the program assumes double-chained 1541s, allocated device 8 and device 9, though it can access the more powerful (eg 4050, 8050, 8250) business double drives via an Interpod. But the use of IEEE cards in the cartridge slot is advised against, because they use some of the available memory.

Then the user is asked if a serial printer is to be used ('no' assumes a Centronics type parallel printer).

The opening menu offers the following options:

- Run Procedure
- Use Calculator
- Get System
- Create System
- Load and Run

Whatever option is chosen, the new menu pops up (in a different colour) overlaid on the previous

menu, so that if 'Create System' is chosen for example, and then Eds Form from the Create System menu, the previous two menus can still be seen.

Menu options are chosen by using the function keys: F1 moves to the top of the menu, F3 to the previous option, F2 to the next option and F5 is delineated the 'go' key. The RETURN key is disabled: I can't understand why they didn't use it, whereby hitting F5 for a different function, but there you are. Apart from this opening menu, the top option is always 'EXIT', which returns you to the previous menu.

Up and running

The calculator facility is not remarkably powerful, performing simple arithmetical (plus minus, multiplication, division, square root) from left to right on up to 26 variables. Brackets cannot be used to supersede the left-to-right order for calculations. Nor can the variables be assessed from within the rest of the program.

Each record can consist of up to two fields, the first limited to one screen (24 lines of 40 characters, including field names), the second any variant of 65 lines of 60 characters (eg 132 lines of 40 characters). The cartridge Magpie forms were both 8x40 – one of the few places where the Micro version is less powerful than the original.

The second form is also used for reports on the database.

Alphanumeric field data areas are defined by typing in capital letters, for example **AAAAAAAAAA** or **BBBBBBBBBB**; and numeric fields (such as telephone numbers) by small letters – **aaaaaaaaaa** or **bbbbbbbbbb**.

Maximum record length is 960 characters including field names on the 24x40 form, or 5280 on the

65x80 form. That means you can have up to 25 alpha fields and 25 numerical fields on any record form. Each field can be up to 255 characters long.

So a typical mailing list form might have the following layout:

Name	NNNNNNNNNNNN
Address	AAAAAAAAAAAA
Town	TTTTTTTTTT
County	CCCCCCCCCCCC
Postcode	PPPPPPPPPPPP
Telephone	mmmmmm
Remarks	RRRRRRRRRRRR

Save and search

Form layouts can be saved to disk and all the existing names can be listed, either to replace them or avoid accidental over-writing.

Systems can be password protected, though this can create problems, not so much in forgetting passwords (it's a good idea to use something fairly unforgettable, such as your own name) but because it's also possible to get locked out of a system by an 'invalid password' error message when you want to do something new. It happened to me.

Searching for records is not as easy as with some other databases. For instance, in Superbase sequential searches on key fields or matches are available from a top-of-the-screen menu, but this is only possible because the very powerful 'procedures' language is used.

This takes time to learn, but since the most frequently needed procedures are fully documented, and learning procedures is actually the best way of getting the most out of the system, this is a necessary and valuable chore.

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Procedures

A procedure is created from the 'Edit Procedures' option of the 'Create System' menu. The left-hand side of the screen is cleared for the creation of text, and menus are displayed on the right half. First the name of the procedure must be typed in, preceded by a single quote eg 'search'. Sub-procedures (or subroutines) are named with a double-quote opening, eg "mod-
it".

Other commands can be menu-selected, even the names of forms to be accessed, which come up from the disk directory on the 'Select Form/File' menu. This is an almost foolproof way of programming, though the exact wording of the commands may seem strange to those raised on Basic, which can result in the following sort of sequence for a yes/no choice:

Enter Yes or No
Enter Another?

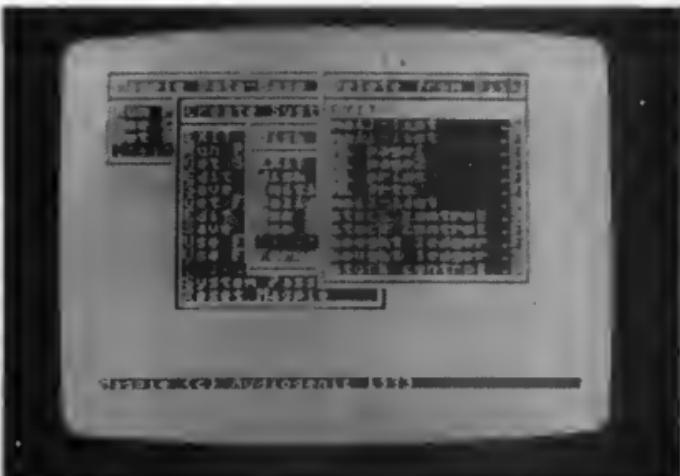
If so skip

A search procedure is fairly self-explanatory.

Thus it will be seen that in a t2 basic program, only two items, the name of the procedure and the prompt, have to be typed in. The rest are generated automatically either directly from menus, or from disk directores scanned from within a menu.

Documentation

The cartridge Magpie was brilliantly documented, with all



the various help screens, menus reprinted in full and presented in a tough ring binder.

Disregarding that well known maxim, "If it ain't broke, don't fix it", they've rewritten the manual for the disk version, and used it to replace the documentation for the cartridge version, too.

Fortunately, though it's presented in a totally different

way, the new manual is good too. The old one wasn't indexed, a cardinal sin in my book, but I found it fairly easy to get around despite this significant lack.

The new one wasn't printed at review time, and I had to work from some advance proofs, so there may be an index in the finished book. However, I found it harder to get around without one.

The stock control system is more than adequately documented, making it fairly easy for the user to adapt for specific needs.

Conclusions

I hate to play off one program against another, but it was inevitable that I compare it with Superbase, despite the (now) disparity in price.

I actually prefer Superbase, not so much because its programming capability is more sophisticated (which it is), but because it's easy to use after reading only the first few pages of the manual. If the procedures stump you, then you won't be able to use Magpie.

It's really a case of try before you buy. A database needs more time to choose than a word processor, believe it or not. Allocate at least an afternoon, and visit a shop which has both, and is prepared to give you adequate time to evaluate each.

But, if it's value for money you're after, Magpie has got to be the software bargain of the year.

COMMAND	EXPLANATION
Search	procedure title
Name & Address D	data file to be used
Search F	form name to be used
enter fields	menu command for entry of search parameters
begin	menu command to begin search loop
get record	menu command to examine record
match fields	menu command to compare record
if found skip	menu command to skip next commands
next record	menu command to examine next record
if field skip	menu command for end of file
repeat	menu command to continue search
continue	menu command to continue
Enter Yes or No	procedure
Is this the one?	menu command for following parameter
If yes skip	typed-in question
repeat	menu command to cease search if found
End of procedure	menu command to continue search
	menu command to end program

Under review	Micro Magpie
Description.	Database for Commodore 64
Supplier:	Audiogenic
Address:	39 Suttons Industrial Park London Road Reading, Berks RG6 1AZ
Telephone.	0734 664646
Summary:	Cheap and easy to use for the beginner. But simple activities use complex procedures
Price	£39.95 on disk

More memory for business?

A look at the new Commodore 8296

by Karl Dallas

The memory of business computers is getting larger by the day; to the extent that 128K of RAM is now being regarded as the minimum for a 'true' business machine. So Commodore has beefed up the memory capacity of its 8096 range from 96K to 128K and has called the resulting machine the 8296. Apart from that, they look identical.

Overjoyed by the 8296's potential, Karl Dallas went out and bought one, but found that actually using it qualified his initial enthusiasm.

The launch of a 128K version of the 'business Pet', previously limited to 96K in its now discontinued 8096 version, must have been greeted with joy by many who, like me, were pushing hard against the limitations of the 96K memory. And the push was coming from within software houses, too.

Tom Granstrom of Precision Software, told me, for instance, that he was hoping to be able to rewrite Precision's excellent SuperOffice so that it was able to switch easily between word processing, database and spelling checker without any reLOADing. (The present version offers you word processing plus a database, or wps plus spelling checker, and to get from the latter to the former you have to quit the program and reLOAD.)

He has decided not to, for the simple reason that the 'extra' 32K is virtually inaccessible to anyone but a hacker prepared to fit jumper wires all over the insides of his pretty new machine. I doubt that many business users are included in that description.

Let me quote what Tom tells me. "The extra 32K of RAM resides behind the BASIC/kernal area and is controlled by the user port. However, writing to the user port could cause the machine to lose its BASIC or kernel inadvertently. Therefore the machine as shipped will not allow the use of the extra 32K RAM."

"A deliberate act on the part of the user will allow the RAM to function, a number of links made the machine have to be made by wire, or better still by a DIP switch."



These links allow 32K RAM switching in 4K blocks, and can specify a 'power on' condition for slots 'B' and 'A'. These slots are normally empty, but can be fitted with utility/security ROMs.

Power-on can be set to use the RAM in this area, giving the user the option to softLOAD ROMs". A call to Commodore at their new Corby technical enquiries number (0533 203253) confirmed that Tom knew what he was talking about. "It will however run all 8096 software with no trouble," said the lady in Corby. And that according to Commodore's Gail Wellington, was the major consideration.

new machine had to be able to run the wealth of existing 8096 software. (Despite that, it is rumoured that Handic is adapting Calc Result to take advantage of the increased capacity)

Now, we computer writers lead a fairly charmed life, getting access to expensive machines and software free of charge, and so one could normally print a large warning, caveat emptor, in whatever medium one had access to, and pass on to the next subject with a laugh of gay abandon.

If you detect a rather different tone to what I've written so far, it's because, attracted by the

possibilities of 128K to power my business, I actually went and bought one of these '128K' machines. And though I get a hefty journalist discount, I still feel rather sore about it.

Pros and cons

However, the good news is that the 8296 does perform exactly like the old 8096 and the new Porsche-styled look, originally created for the now discontinued 700, with a really nice keyboard and a really nice key action, results in a very classy piece of equipment.

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Under review

CBM 8296

Description:

128K micro computer

Supplier:

Commodore

Summary:

Attractive, friendly version of the popular 8096 business machine, but with 32K extra memory that's tough to get at

Price:

£914.24

If you dream in, as I did, with the new low profile 8290 disk drives, which give you faster access times and double-sided disks (and therefore twice as much data per disk), work becomes rather like driving a powerful sports car that rases eyebrows wherever you pass.

A warning, incidentally, about the drives. They are less efficiently ventilated than the old square versions, and I found that piling papers on top - I know we shouldn't, but I expect everybody does - caused the drives to hang up until I turned off the disks and let them cool down.

This raises in my mind a possible problem about the 8296D, the version with integral disk drives. I tried to get hold of a review sample, to see how well it performed during extended use, because I'd have thought the drives would overheat much more when sandwiched between the neatly laid-out CPU and the VDU, but since I'm still waiting, I can't say.

(And Commodore has just announced that it is giving away £665 worth of software with the 8296D. That lot amounts to three application packages: the SuperScript word processor

complete with spelling checker; The Manager database and file management package, and Handic's Calc Result spreadsheet. Commodore dealers are selling the lot for £1,690 excluding VAT.)

Documentation

The documentation is really bad even by Commodore's standards. The 8096 was supplied with an 8032 manual plus a 16-page supplement; this new one also comes with an 8032 manual (illustrated by the old m-bez shaped machine) in which the way of getting into it and the chip layout is different, the Porsche body jangles at the back, instead of the front) plus an 8296 supplement.

This makes one wonder if Irving Gould is really serious about wanting to service 'all classes' with Commodore kit, or whether he's decided that only 16-bit architecture (a is the forthcoming badge-engineered

Hypnos) or Unix (as in the promised 28000 machine) will satisfy the business market, and he's not really bothering until they're available.

If that's what he thinks, then a my humble submission, he's wrong. I've actually got a Hyperion, and it's a sweet machine in its own way, but I'm writing this on my 8296, despite the fact that the 16-bit machine has 2½ times the available memory.

Conclusion

I like working on the 8296, and even if it doesn't have more memory than my old Pet-shaped 8096, it's still a nice machine to use, with its detachable keyboard and tilt-and-swivel VDU. At the price I paid, I suppose I shouldn't really complain.

But if I'd paid nearly a grand for an 'upgrade' that wasn't, I might feel somewhat aggrieved.

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So you think you

How to complain about duff products

by Charles Christian

As far as the laws of the land are concerned, anyone who buys and uses a computer for a hobby or out of educational interest is lumped together in a general category of people known as 'consumers'.

Now, it can lead to desperate problems when a business computer system goes down, leaving a company "in the lurch" as regards its data processing requirements. But it can be just as annoying for an enthusiast to discover that the computer system he or she has spent a lot of money on will not work. Indeed, the blow to someone who has painfully saved up enough money out of a meagre pocket-money allowance to buy something like a 64 may be considerably harder to bear than for a well-heeled businessman who has perhaps paid many thousands of pounds more on a system.

Fortunately, though, consumers do have rights - rights which frequently are far more generous than those enjoyed by businessmen making non-consumer purchases. But do you actually know what these rights are?

Commonsense might suggest that if your computer system does not work, all you have to do is take it back to the supplier you originally bought it from and demand your money back. But is life and the law really as straightforward as that? Read on, and you'll find out...

The starting point with this subject has to be the 'contract' for the sale of goods between you and the trader who supplies you with them.

You may have read about long complicated legal documents spelling out lots of elaborate "terms and conditions". In fact these are totally unnecessary for consumer transactions - word of mouth is good enough. To be precise the moment you offer to buy, say, a light pen and the trader accepts your money, you have all the factors present that are necessary to create a legally binding contract.

It therefore follows that if the trader takes your money and then fails to come up with the goods, the trader is legally in the wrong. He is acting "in breach of contract". And unless some form of settlement can be agreed, ultimately you will be entitled to sue for financial compensation, known as "damages" - in a court of law.

Almost a fact of life you'll find that (legal necessity or not) most traders - especially when you're buying hardware - will issue you with a formidable set of terms and conditions in writing. Such things are known as "express" terms.

Regardless of what they may or may not claim, such terms are not legally binding unless they are brought to your attention before the contractual transaction is completed.

Implications

Further, even if you are aware of the terms, the trader is still not permitted to deprive you of any of your "statutory rights". Without getting too bogged down in the legal jargon, the most important statutory rights are a set of three "implied" contractual terms spelled out in the 1978 Sale of Goods Act.

These implied terms are in effect promises made by the trader to you about the quality of the goods you are buying. So no matter what may be down on paper, any court of law that considers your case will automatically read these implied terms into the contract thereby crediting them with as much importance as if they had been formally spelled out in writing.

In a nutshell the three implied terms are:

- that the goods are fit for their "usual use". In other words, if you buy a cassette deck for a Vic or a 64 you are entitled to assume that it will actually run software programs. On the other hand, you cannot complain if your floppy disks start to suffer when you treat them as table mats, in no way can you be said to be using them for their "usual use".
- that the goods are of a proper "merchantable quality". If you



(Handwritten)

Do you know your rights?



terms if a reasoned (as opposed to an hysterical or abusive) complaint is made of them. Always make your complaint without delay and don't give up easily. If necessary, send a written complaint to the trader. And if you still get no satisfaction, write to the trader's head office, their suppliers or to Commodore itself - most of them will be keen to ensure that only reputable companies are involved with their products.

Assuming the trader accepts responsibility, what can you expect?

The trader may offer you a free repair. Although there should be no real reason why you shouldn't accept such an offer, bear in mind that you are under no legal obligation to do so.

Likewise a trader may offer to exchange the goods. Once more, you may accept a replacement; and it is probably the most convenient thing to do. But again, you are under no legal obligation to do so.

What you are actually entitled to in law is "damages" - in other words, cash compensation for any loss the purchase of the defective item may have cost you. Thus for example, if the gadget is so defective that it causes your main processor to blow up in your face you can also claim the cost of replacing or repairing that.

Alternatively you are entitled to get your purchase money refunded - which is possibly the most frequently sought after remedy.

But the main rule is - act swiftly. If you wait six months before claiming the law may deem you to have "accepted" the goods; which means that your legal rights are considerably curtailed. The legal rationale is that the longer you have something, the more likely it is that any faults it contains are due to natural "wear and tear" rather than to some inherent fault.

Finally, before leaving the subject of remedies altogether, watch out for a trader offering you a "credit note". When you are entitled to a full refund you can insist on it being in cash.

Court in the Act

Assuming you can reach a settlement with the trader, all your problems are over. If not, you are going to have to resort to litigation.

Starting in mind the average cost of Commodore systems, it will usually be possible to pursue this by bringing what's called "ordinary action" in a County Court. The upper ceiling on claims of this sort is £5,000, after that cases have to be dealt with in the High Court.

buy something as "new" it should be in perfect condition and not shop soiled. Similarly, if you get an electric shock off the equipment, there is obviously something wrong with it - entitling you to complain that the item is not of "merchantable quality" * that the goods are "as described". Thus a stock control program specifically described as covering 1,000 different categories of goods should be capable of holding 1,000 categories. Otherwise the program is not "as described" and the trader is once more in the wrong.

Although wrapped up in legal terminology, these implied promises cover the three most frequently encountered user problems likely to face a Commodore user - "the thing doesn't work properly"; "the thing is of poor quality", and "although there is nothing wrong with it, the thing is not what I asked for".

Fortunately, the courts do not expect you to learn the law in great detail. And, as long as the facts in your case broadly fit in with these principles you are in the clear.

And on to practical matters

Having dealt with the theoretical background to consumer goods law the next matter to consider is the practicalities of defending your rights when something goes wrong.

Justice has been made of many people in court but in fact litigation should always be seen as the final step, only to be taken after all other approaches have failed to be of use.

So faced with, say, a defective device to plug into the back of your C64 computer, just what steps should you take?

* **against the trader:** the first step to do is complain, as many traders will quite happily come to

And where the claim involves no more than £500, there are in addition two legal rules which make life a lot easier for any do-it-yourself lawyers. To begin with, for small claims of this sort both sides have to bear their own legal costs - so even if you lose, you will not be landed with a big bill to pay for the trader's lawyers. And secondly, these small claims are dealt with in informal "arbitration" hearings; these are far less daunting for the amateur than a full-blown trial before a judge.

Before getting around to litigation, you may well find that the trader in question has done a bunk - this can often be a problem with mail-order suppliers. Or alternatively, may be in dire financial straits. Lawyers describe such people as being "men of straw" - so as to not make it worthwhile to sue them. Fortunately three alternatives exist:



* **Against the manufacturer:** in the course of normal events because your contract is with the trader he is the only person you can sue for breach of contract. If the trader was merely acting in a dealership capacity, though, he was selling products on the retail market which have been manufactured by someone else and in certain circumstances it may be possible to seek compensation from, or even sue, the manufacturer directly.

This can arise where the manufacturer supplies a "guarantee" or "warranty" with the product, as this is construed in law as being a separate contract - this time between you and the manufacturer direct, thereby cutting out the middleman. Bearing in mind that a company like Commodore is most certainly not a "man of straw" it may often be more worthwhile if you have a guarantee, to go straight for the manufacturer.

* **Against a magazine:** Whilst a company like Commodore may be sound enough, smaller gadget

manufacturers and software houses have an annoying tendency for being unreliable. Mail-order suppliers are the most unreliable, and in many instances if your dispute with someone of this sort you may have to reconcile yourself to a complete write-off.

On the other hand, it may turn out that the magazine or newspaper that carried the mail-order advertisement runs a compensation scheme for readers. These are purely voluntary affairs - indeed they can best be regarded as public relations exercises - but the basic principle is that anyone who has sent money to an advertiser who subsequently defaults can claim compensation from the publisher.

* **Against the credit supplier:** if the item that is the centre of the dispute was bought with the assistance of a credit card like Access or Barclaycard, you will be relieved to know that under Section 75 of the Consumer Credit Act 1974, the "credit supplier" may also be liable for the goods.

So instead of pursuing an action against a possibly insolvent trader you have the option of suing a well-heeled bank for compensation.

Surprisingly few people seem to be aware of this very powerful provision. It's worth bearing in mind however that the credit supplier is only liable if the cash price of the goods was between £30 and £10,000. The upper limit should cause few problems but the lower one will mean that the suppliers of some of the smaller CBM-type accessories and ROM or cassette-based software will probably fall outside the scope of Section 75 measures.

Last words?

Faced with the defective product, most consumers' first reaction is either to be upset or to have a stand-up row with the manager of the shop where it was originally bought.

In fact there is no reason to panic.

You do have legal rights - plenty of them. And, not only are there a number of different approaches you can adopt, but you can pursue them against a number of different people. The secret is to tackle each one in turn in the methodical way until finally you reach the point of commencing legal action as a last resort.

So, if the thing won't work - don't be a wimp: go and do something about it!

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The Conclusion:

The Anatomy of the Commodore 64



The Book:

The Anatomy of the Commodore 64

The Author:

Various

The Publisher:

Abacus

The Supplier:

Adamsoft

18 Norwiche Avenue

Rochdale, Lancs

0706 524304

£14.95

Dermot Williams

Expensive goldmine

Price:

The Reviewer:

The Conclusion:

The 1541 is one of the least understood of the Commodore peripherals - a lousy manual, dotted with mistakes and omissions, leaves people under using what can be a flexible add-on. Many people are content only to LOAD and SAVE programs and sequential files, little realising the power available through use of relative files, and the direct access commands.

Well, the good news is that all these, and more, are dealt with adequately in an easily-understood style in this book from Abacus. As well as explaining the ordinary DOS commands the book goes on to explain relative files, the direct access commands and the internal structure of a 1541 diskette - the block availability map, the directory, and so on.

Many useful utility programs are given. These programs are an education in themselves, demonstrating many of the commands dealt with. The Disk Monitor program in particular is excellent - it allows easy editing of individual disk sectors, useful for patching up messed disks.

The authors even document the 1541 TEST-DEMO disk programs, including the DOS wedge, giving the instructions for use that Commodore forgot...

For the really keen, the authors also give a fully commented disassembly of the DOS 2.6 ROM, discovering a new command in the process.

This book I recommend to anyone who has got lost in the 1541 user's manual, or those of you who want to utilise your disk drive to the full.

This book has never stayed more than a few feet away from my 64 since I got hold of it. It really is a goldmine, aimed particularly at the Machine Code programmer, and it's full of useful routines.

Half the book is occupied by a disassembly of the Basic and Kernel ROM. The disassembly is very well documented, and switches between hex, ASCII and assembly as appropriate for jump tables, command word lists and programs. It is easily the best disassembly for the 64 I have seen, so good that I would have bought the book for it alone.

However, this book has more to offer. The first chapter deals with machine code programming on the 64, giving many useful tables of ROM calls and devoting a lot of time to I/O from machine language. Other chapters deal with the advantages of assembly language as opposed to pure machine-code programming, the 64's hardware and memory configurations, and the workings of the Basic interpreter, including how to expand Basic - with working examples.

These chips dealt with in individual chapters are the SID (mainly sound), the VIC (graphics) and CIA (I/O).

Thankfully, there is very little material in this book which is likely to be in the half the books on your bookshelf - such as the standard appendices packed with all too familiar tables and diagrams.

It's a pity this book is so expensive, but it costs just as much to buy in the USA. Even taking the price is to consider, I strongly recommend this book to anyone who wants a good 'anatomy' book for the 64.

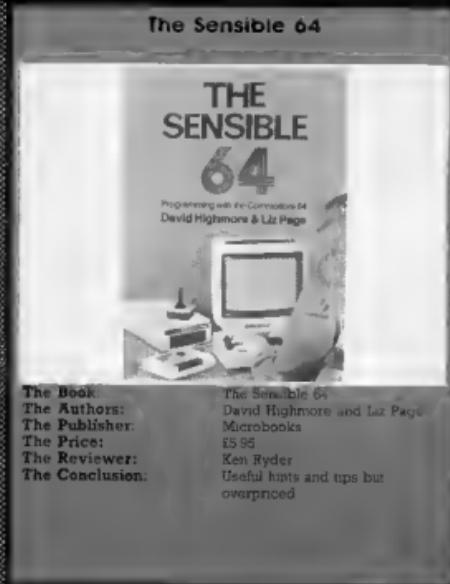
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The Book:
The Authors:
The Publisher:
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The Conclusion:

The Sensible 64
David Highmore and Liz Page
Microbooks
£5.95
Ken Ryder
Useful hints and tips but
overpriced

The Sensible 64 contains 125 pages of useful pieces of information created from the user manual. It mainly concentrates on graphics, with a small section on the music facilities offered by the SID chip. There is no introduction, the authors dive straight into input from the keyboard using the GET statement to select menu options. Numerous short useful subroutines are given as examples.

User defined characters pop up next to the usual instructions on how to define and locate them in memory. Multicolour and reverse options are also included, something which is often glossed over in other dissertations I've seen. The subject of sprites follows on naturally, and is equally well covered. Useful single line Basic statements are given to help control the numerous sprite registers, but it's a pity this section fully the reader should have been introduced to logical operators, AND, OR, but unfortunately is not.

The chapter on screen memory offers a useful subroutine for storing alternative screens and their colour maps in the spare 4K RAM above Basic. The authors admit that Basic is too slow for large amounts of data transfer, and introduce equivalent machine code routines. Again no attempt is made to explain the code – but it does encourage you to find out. Machine code is again used at the mysterious art of screen scrolling. I say mysterious because Commodore neglect it entirely in their user manual, and only mention it in passing in the Reference Guide. Extended colour mode is briefly explained, but no applications are suggested for it.

High resolution and multicolour bit mapping is saved for the last subject on graphics. Where to locate hi-res screens is briefly mentioned, incompletely covered. Again a machine code subroutine is used to good effect to clear a

bit mapped screen. Several compact Basic subroutines are included for drawing lines, squares and circles.

This section is followed by a brief description of bank selection, and another subroutine that addresses the VIC chip to bank 3, allowing the creation of 128 user-definable characters and up to 16 sprites, leaving 30% for Basic programs. Joysticks are introduced and combined with hi-res graphics to produce a crude plotting routine under joystick control.

Only 20 pages are devoted to sound and music. The sound envelope, ADSR is well explained including waveforms and sound effects. General music notation is introduced with a useful table of POKE values for notes and their duration. Unfortunately only a single voice is covered, and there is a little advice on chord generation. Filtering and ring modulation is skinned over and one of the final comments of the chapter is 'it is impossible to give more than a guide to the sound capabilities of the Commodore 64'. I think this is more of an excuse than a statement of fact.

The final two sections deal with disk drive and printer operations. The examples are rather trivial or more adequately covered by the appropriate Commodore manuals, (and they are bad enough).

The Sensible 64 implies a 'serious' approach to programming; instead it is a serious approach to the advanced facilities of the 64, filling in the gaps of the user manual. There are many useful subroutines, particularly on the subject of high resolution graphics, including some machine code. But explanations are generally brief and somewhat superficial leaving you wanting to know more, but without the detail to find out. At £5.95 it is rather expensive.

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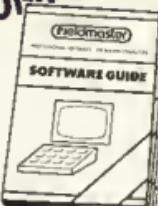
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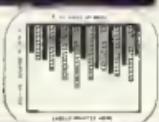
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*Tommy's
Tips*

TOMMY'S TIPS

Tommy is Commodore User's resident know-all. Each month he burrows through a mountain of readers' mail and emerges with a handful of choice queries. The result, before you, is a wedge of priceless information and indispensable advice. There's even the odd useful tip as well.



Dear Tommy, I have had my Vic 20 computer for four months now, and I seem to have a problem and was wondering if you could help me.

A couple of days ago I bought two books to help me use my Vic. It is when I try to program the games listings into my Vic, that my problems occur, and it happens with any long program.

What happens is that when I have reached the end of the program and listed it there are lines missing. It seems as though the computer will not accept the lines.

When I was trying to program a game in I had got halfway through it when I got an UNDEF'D STATEMENT ERROR message, and I hadn't even finished programming let alone typed RUN or LIST. And when I tried to type in two lines, one has never came up in the listing no matter how many times I typed it and the other gave a SYNTACTIC ERROR message even though it was the same as the one given in the book. I am writing to you because I don't know who else to turn to.

I assume that the programs you are attempting to put in are not just too large, but assuming they are all ones which should fit into the available memory then it sounds very much as though you have a faulty RAM chip in the computer. Do you sometimes have trouble with the Vic not powering up correctly (you get garble on the screen)? If so, this is almost certainly a faulty chip. There is a way you can test this, enter the following program and run it (do not put in any of the spaces except inside quotes) It will tell you if any RAM address is

not functioning correctly. You may have to run it several times since faulty RAMs can be very intermittent, sometimes working correctly and then failing for no apparent reason. If your computer fails the test even once then take it back to your dealer for repair.

```
10 PRINT"(CLR)"  
20 FOR A=4253 TO 7673  
30 X=PEEK(A);PRINT A;  
40 POKE A,0  
50 IF PEEK(A)<>0 THEN  
50 GOSUB 100:GOTO 80  
60 POKE A,255  
70 IF PEEK(A)<>255 THEN  
70 GOSUB 100  
80 POKE A,X;PRINT"(CUR  
UP)":NEXT A  
90 END  
100 PRINT" FAILED":RETURN
```

If you have any memory expansion then you should alter the loop values in line 20 as follows:
+3K - change first value to 1182.
+8K - change first value to 4758 & second value to 15582
+16K - change first value to 4768 & second value to 24678
+24K - change first value to 4768 & second value to 32767

(The reason the test does not start at the very beginning of the basic area is that you must not disturb the program itself which occupies 187 bytes.)

Dear Tommy, My problem is mixing graphics on the Vic-20. It is easy enough to just print or use the POKE commands to get one of the graphics on the keyboard, but I would like to get complicated graphics, like those on games that you buy. I have a switchable 16K expansion.

I would also like you to recommend a good programming book for a Vic-20 with 16K expansion (switchable) suitable for a 10-13 year old.

What you have to do is to design your own characters on an 8x8 grid and then tell the computer to use your character set instead of the normal one. To start with, you need to transfer the existing character set into RAM so that you can play around with it; this also ensures that

you don't get garbage on the screen when you swap between the two. This is done as follows:

```
10 POKE 52,28:POKE 56,28:  
CLS  
20 FOR A=7185 TO 7975:POKE  
A,PEEK(25600+A):NEXT  
70 POKE 38468,255  
80 END
```

You can now replace any of the characters with the design of your choice. The characters are made up of 8 rows of 8 dots; each character is therefore stored as eight bytes in memory. By actually drawing your characters on paper and fitting in the squares to make the design, you can work out the value to be put into each byte since a filled square equals 1 and an empty square equals 0. The resulting 1s and 0s make up a binary number, for example 00111100 = 60, thus is the value you would need to POKE into the relevant memory location. All 8 rows are totalled in the same way, giving you your new character. A small program will illustrate it much better.

```
30 FOR A=1 TO 3  
40 READ CH:FOR C=CH TO  
CR+7  
50 READ W:POKE C,W  
60 NEXT C,A  
70 PRINT"(CLR)":TAB(96):  
"JET":TAB(88)  
100 DATA 7266, 0, 0, 1, 36, 53,  
31, 3, 1, 7  
110 DATA 7266, 0, 248, 38, 39,  
255, 255, 240, 240  
120 DATA 7328, 2, 6, 14, 255,  
255, 254, 0, 0
```

Run this with the first part; a small jet fighter will appear on the screen. By expanding the data statements in groups of eight, you will see how the characters are made up (the first value is the start address of the relevant character); you can then follow the same method to design whatever you like. One restriction with using your own character set is that you can only move it to the RAM which is permanently in the machine (ie not any expansion area). This causes slight problems when using more than 8K expansion, but has no effect when using 3K extra since you can still reserve space at the top of memory. To regain the nor-

mal character set type POKE 36809,249

On your second query I am not sure whether you want a book to tell you how to program on the Vic or one to learn Basic programming in general. If the former then *Vic-20 User Guide* by John Hallinan and Ram Talbot is as good as any, and if it is a basic tutor you are after then you are rather spoilt for choice. *Illustrating Basic* by D. A. Cook costs £2.25 and is a good book although not for any particular machine. Commodore have a couple of good learning packages: *Gorkas and the Microships* (£12.99) and *Introduction to Basic (Part 1 and 2)* (£14.95 each). Dr Watson Basic course, but there are a number of others equally suitable.

Dear Tommy, My father has bought the Commodore 64 Disk Drive and has given it to me to write people's names and addresses for his job - to store them on disk. I would like to know how I could print it out on the screen so the disk will save it. I would be very grateful if you could tell how you would do it.

I think I detect a little confusion here between printing on the screen and storing the data on the disk; what you need is a program which will store each name and address in a record which is then stored in a file on the disk. I suggest you purchase one of the many database programs which are designed for this very purpose.

These programs will allow you to input the information, sort it into alphabetical order, display it on the screen, print it on a printer and finally store it on a disk or cassette. Make sure you check how many records you are going to need as some of the cheaper databases are limited in the number of records per file. There is of course no limit on the number of different files you can have so this may not be a big drawback. The best method is to ask for a demonstration before you buy, so you would be better off going to a dealer rather than getting it by mail-order if at all possible.

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Falcon Patrol — A fast action and compelling game which I highly recommend! It's a superb 3D shoot 'em up. **Hideous Bill** & the **VIC 20** — It's very addictive and I like Falcon Patrol the best of course as I prefer Home Computer Action.

Mission Mercury — This is one of the best space fighters I've seen in an action game. It's a great game and I'm sure you'll enjoy it. **Envahi** — I enjoyed playing this one. **Creepers** — This game is exciting and interesting and an ideal game for any serious computer games player. **Ambush** is unique as is **Sally Creepers** — A

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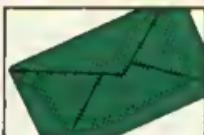
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Letters

Write away

This is your page: normally we write for you, but here we listen. Feel free to let us know what you think – about the magazine, about Commodore, about suppliers, about life, art, the meaning of existence or whatever. We don't print everything we receive, of course; but anything that might be of specific relevance or general interest will make it to these pages.



Teacher's Pet

I am head of Computer Science in a Comprehensive School that had, as other schools and colleges, taken advantage of the Department of Industry scheme and purchased an IBM 3802. The intention was to equip a Computer Centre with these machines or the slightly cheaper 3802. However, money became tight (due to Local Education Authority cut backs and also the 'flavour of the month' changed to technology) and we were, as a one-off concession, given £800 to purchase micros. This allocation would not even buy ONE more 3802 let alone 10 which was my brief. As you will no doubt be aware the other (cheaper) machine sponsored by the DoI is the Spectrum. Having looked at the Spectrum and considered it carefully I decided that it was sufficiently robust for general use. Given the environment of even a well supervised classroom the keyboard, let alone the case, would be under constant threat of damage.

I cast around for a machine that was robust, cheap, could be expanded at a later date and had come from a good stable. I am sure it will not be any surprise that I opted for the Vic-20 and, having contacted a supplier, was able to negotiate a good deal on the quantity order. The school is now equipped with eight Vic-20s, a Commodore 64 (with disk, printer, plotter, graphics tablet etc), and, of course, the ubiquitous 8MIs.

All the above is largely irrelevant except that it sets the scene. The Computer Centre provides 'micro power' to a large number of 'serious' users. By serious I mean people who only play video games occasionally and then are very disengaged over the ones they pick

The School Library is now in a position to take a periodical of interest to computer users in the school and obviously they asked my advice. I spent three months buying ALL the magazines I could lay my hands on – from your better known rivals to the more obscure and 'esoteric' publications. And now to my point, of all the magazines I bought in that three month period Commodore User was the only magazine that impressed me at all!

You're still the only magazine not to be filled with lashings of pathetic programs attempting to emulate ridiculous, and all very similar, arcade games. I do not object to those people who wish to spend hundreds of pounds on sophisticated equipment merely to play Ravenous Robin or the like. Nor do I object to software manufacturers making money selling overpriced, and very similar, games to them. I do not object when people who play these games refer to themselves as programmers nor when they publish magazines in order that they can tell each other how wonderful the wretched games are. I DO object when publications claiming to be respectable journals are filled with this rubbish. Having made a study of the available literature I am able to say that 99% of it is as described above.

I have taken an unprecedented step in writing to congratulate you on your publication. The July issue was a masterpiece. The UNICOPY64 program published (without error – a rare event in other literature) was probably the most useful routine published in any magazine for some years. Jim Butfield is a great asset to your staff and should be retained at all costs. He has kept his high standard again in August with TINYMON for the Vic-20 I, and the rest of the Centre's Users, are grateful that at least one author and one publisher are actually interested in serious computing and are providing other people with the means to use their computers creatively.

I have a number of editions of Commodore User open on the desk as I type and the list of useful, informative, accurate and well written articles, program listings

and 'shorts' is quite remarkable. You set the standard by which I shall judge all other publications. Let me say at once that whilst there are, at the minute, none to touch you, you must guard your growing reputation jealously – I was a little disappointed that John Rampling's otherwise excellent article "Using the 64's Function Keys" was published without its accompanying BASIC listing. However mistakes will happen and I have no doubt that this is a mere temporary aberration. I will make no further reference to it!

Having written this unsolicited testimonial to you I need not add that my unqualified recommendation to the Library will be to take out an immediate and lengthy subscription to Commodore User. Once more my congratulations and our thanks.

A Freedman, 29 Klap Geergs Ave, West Watford, Herts WD1 7QE

The other side...

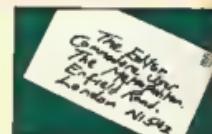
I am rapidly becoming your number one fan and maybe even quicker than that.

With the help of Butfield and the boys and excellent opps from other readers I am understanding many things most puzzling. To thank all those would take for ever so please pass this tip to them with my gratitude. Disk Drive Owners Delight:

- 1 Take two new disks
- 2 Place back to back
- 3 Take Stanley knife or similar sharp object
- 4 Insert sharp object in write protect notch and make neat incision in bottom of disk
- 5 Repeat 4 until a neat square removed
- 6 Place disk in drive and format both sides

Why disk manufacturers don't do it without charging wicked prices I don't know. It does not work well on old well-used disks, so don't waste time.

Again my thanks for a great mag G Elliott, 116 Church Parade, Cayman Island, Essex.



You're quite right, it is possible to format and use the other side of a single-sided disk. But be warned: single-sided disks are usually verified only on one side. And they're probably sold as single-sided disks because they failed the double sided test!

Inky fingers

I was interested to read in the review of the MPS-801 printer (July issue) that the ribbon on that machine has an easily replaced ink pad. I have a 1515 CRM printer and when the ribbon recently refused to make any further impression I was encouraged to experiment and discovered that the lids on the little boxes at each end of the ribbon can be easily pried off with the blade of a knife.

The right hand box is of no great interest as it contains merely some sort of tensioning device. The left hand box, however, holds the ink pad in the form of a loam rubber wheel. This is easily removed, soaked in stamp pad ink, and replaced. Maybe the ink I have is not the best for the job. At all events it is cheaper to apply some fresh ink than to pay £5.50 for a new ribbon.

R.G. Holmes, Dailies, Gless Road, Peebles EH45 9AY.

Fingers do the walking

I am writing to you to tell you just how effective your 'classified' ads are! I had put adverts in many other magazines and had no response and had therefore wasted money on the adverts. Even now I am still receiving offers for my Vic-20 and they all say it was from your magazine that they saw my advert.

COMING SOON...

The reason why I sold my Vic 20 so that I could update my hardware to a Commodore 64 I think however that Commodore, like Sinclair, could have offered a trade-in deal, ie people who have Vic 20s and wanted C64s could send their Vic 20s in exchange for a 64. Thus not having to pay £200 for a 64. This way the owner of a Vic could buy a 64 at half price and at least get a trade-in on his/her old machine.

I Matthews, 25 Whitehall Road, Redditch, Worcester.

Old Vic

I am writing to complain about your August edition.

I bought the magazine and read through it and wondered whether you had changed your name, like to C64 User. I didn't find one feature (apart from the usual, eg games reviews, but not all of us like games) dedicated to the Vic 20 whereas the C64 had two.

Also can you find any Vic 30 books to review? As for your joint features eg All the Fun of the Show, it was virtually all dedicated to the C64.

I know the Vic 20 is supposed to be dying, but all you're doing is putting the nail in the coffin, so please, can you increase your Vic 20 articles, and keep it that way.

Finally isn't your magazine shrinking? (losing pages - July issue 110 pages, August 58 pages).

Apart from the August issue, it's a good fair mag.

Gary Ward, 15 Court Crescent, Kingswinford, West Midlands.

Clubbing it Down Under

I wish to let you know details of our Commodore 64 Users group, recently formed here in Lismore, for publication in Commodore User.

Name of Group:
Lismore C-64 Users Group,
c/o John Greenwood,
Richmond Hill Rd,
Wollongbar,
Vic Lismore, 2480,
N.S.W.
Australia.

I am very pleased to be able to buy this excellent Commodore computer magazine each month. It is one of the best magazines on Commodore Computers I have seen. I have both the C-64 and Vic 20 computers and find your articles and features very helpful and informative, especially the program listings. I sincerely hope that you and

your magazine improve over the years to come and I will certainly keep buying it each month.

Congratulations on a wonderful publication.

Bruce Greig, PO Box 385,
Lismore 2480, New South
Wales, Australia.

Back-up problems

I have read with interest letters in Commodore User in which readers complain about their dealings with Commodore. Perhaps my own experience will be of interest.

In January after three months of correspondence, I obtained Easy Stock 1 am using that to control the parts inventory in my garden machinery repair business. The system works well, but as I find the single drive back-up program very cumbersome, I asked Commodore whether I could use two 1541 drives to automate the process.

They confirmed that this could be done by using two 1541 drives and the Copy-all utility that comes free on the 1541 Test/Demo disk.

I purchased the second drive, changed the device number to 9 (hard-wired) and attempted to make back-up copies of the Easy Stock data disk No go.

Then followed protracted correspondence with Commodore in which they again confirmed it could be done and sent me various instructions for the use of Copy-all.

Finally, in response to a phone call from a local dealer, they admitted that Copy-all cannot copy Easy Stock data disks. Something to do with the way data is arranged on the disk - way above me I'm no computer buff, I'm just a user.

From my dealings by letter and phone, I feel that Commodore treat their customers with disinterest and contempt. Letters, including recorded delivery letters go unanswered. When they are answered, it is often after a three to five week delay.

From conversations with other users and with my local Commodore dealer, I conclude that these are not isolated incidents. It appears that Commodore are swamped by the scale of business and are unable to cope with the trade they have generated.

However, if any of your experts can help with the back up problem, I would be grateful. Otherwise, who wants a cheap 1541?

Angus Sheppard, The Quillot's Garth, Appledore, Ashford, Kent.

Anybody out there like to lend a hand in solving this reader's problem?

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Holland CBM-64 owner wants to exchange programs (disk) and books with UK 64 owners Many programmes available. Please contact Marnie D. Unitings 4 Ebbsfleet, 3224 CD Helevoetsluis, Holland

Vic-20 plus Programmers' Aid, 16K RAM, Stack motherboard, Stock title Intro to Basic 1.62 £80+ software - Wacky Walkers & Flight Puff 737 £30+ of books including Your Computer &, Commodore User. All in good condition 1½ years old. Price £160 ono Paul Bateman, 184 Morley Street, Goole, North Humberside Tel (0406) 43133

16 yr old CBM64 user boys/girls any age - please write to Lin 18 Pitchford Rd, Heath Farm, Shrewsbury, Shropshire

64 girl penpal wanted Must be 15 upwards. Swap lips on computer. I am a boy, 16 years. Meetings? Dean Godwin, The Coppice, Belper Derby

CBM64 owner with disk drive would like to correspond with female 64 owners with view to friendship & exchange programs Sean Murphy, 35 Balfe Rd East, Dublin 12, Ireland

Attention Vic-20 owner seeks penpal aged about 15 (male or female) to swap games, ideas, etc. Replies to Paul Nolan, Westport, Middleton County Cork, Eire. All replies answered

Commodore 64, C2N cassette unit, only \$200 Unwanted gift Free joystick Phone Amer (01) 574 8583 or (01) 571 3051 Also 1525 printer £200 plus printer paper and labels and free wordprocessor program

CBM64 - Vic-20 Hardware Unity London C2N cassette and copy at some time to second recorder Plus system reset button, £7.00 inc or see details A Denby, 6 Ropewalk, Alcester, Warwickshire CV9 5DQ

LOGO (Turtle Graphics) For Vic 20 plus Super Expander tape plus full manual £7.00 Pay TM. George 3 Alexander Close, Hayes, Kent BR2 7LW

Calling Vic-20 owners I need a male or female pen pal aged 13-16 to swap games and tips Write to Eric Young, 62 Husband Rd, Forest Hill, Victoria, Australia 3131

Graphics 64: over twenty computer games ready for you to play/cross points, draw lines and fill/cross areas on screen (as advertised in Vic64 magazine). Used only twice. Bargain at £8.50 Tim Balk, 117 Kingway, Braunstone, Leicester LE3 2PL

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Software for sale for the Vic 20, including many expanded games such as Klazy Kong and Jet-Pac. If you want one of these games please contact Alex on 01-940 5767 or Paul on 01-940 2012

Commodore software to swap or sell. Many British and American titles, programs include Zaxxon, Blue Max, Commando, Space Invaders, etc. Write (send your list) to Per O Stava, 4274 Stof, Norway (All letters answered).

Vic-20 owners penpal wanted Age 13 15 boy or girl. Write or phone or send a program on tape to Chris 19 Arden Road Prestwick, Ayrshire Scotland. Will reply. (Unexpanded Vic).

Printer wanted for CBM computer to help with college work, any type but type writer type preferred. Phone Rayling Island 67439 any time 72 Ralls Lane, Rayling Island, Hants

Teenage Vic user would like to hear from anybody from anywhere aged 15+. Write to Andrew Horels, 30 plots Newfield Baglan Moors, Port Talbot, South Wales

Plymouth Commodore 64 Users Group Meets first Thursday of every month. For further details ring Simon on Plymouth 772141

Stammore Commodore User Group - anyone interested? Contact Gavin Homs, 27 Silverton Way, Stammore, Midch Thir 4HS. Tel 01-954 4548

Wanted: Modem software for CBM64 with Minor Miracles 962000 Modern compatible with following standards C-CIT V21/V23 and American Bell 202 Ring 01-337 3183 evenings and weekends

Wanted: voltage transformer for Commodore 64. Ring Chris 0274 585121 anytime. Also monochrome monitor

Want Vic 1540 disk drive, leads and user manual. Please contact me by letter. My address is Hill Farm, Kersall, Newark, Notts NG22 0JU, thanks

Wanted: C64M4 software I will pay cash Write to C Watt, 2 Portland Tree, Heatham, Northumberland NE46 3DJ with any information and offers or ring Heatham 605314 after 6pm.

Switchable 16K RAM for a Vic 20. Phone Carterton 841496 anytime

Penpal wanted for Vic-20 user to exchange listings and information. Please write to Barnetts Farm, Markeaton, Horncastle HG3 3PZ. Thank you PS. name is Raymond Peacock

Commodore 64 penpal wanted to write to a 13 year old girl. Write to Jayne Fae 24 Woodville Road, West Denton, Newcastle-upon-Tyne NE15 7JZ

Wanted: a Commodore 64 user who will swap games. Write to Danny Farrow, 7 South Park, Welling, Dartford, Kent. Tel (0842) 812482, ask for Danny. All letters answered

Vic-20 software Mole Attack and Menagerie (contingent) £5 each Wizard and the Princess Caccho 50p each. Steve Hankinson, 2 Sunflower Close, Springfield, Chelmsford, Essex. Tel Chelmsford 465148.

CBM64 s/w sale, Internat Soccer £10, Rat Race £7, Defender (Atari) £15, Forbidden Forest £7, China Miner £4.50 Hover Bazaar £5, Defender 64 £4.50, Sirien City £4.50, Extraterminator £4, Cyclons £3 Faceache £2, Carnets £5, Revenge £5 plus more Tel 0222 61917, ask for Ian

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I have an idea for a program which could be worth a fortune. Unfortunately I can't write it if you can contact R Ham, 188 Ramford Road, Forest Gate, London E7 9HY.

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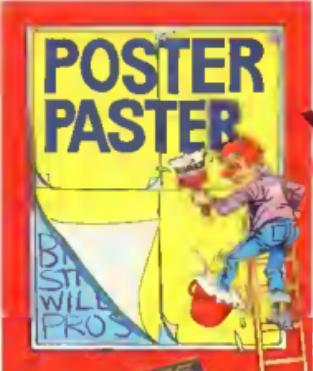
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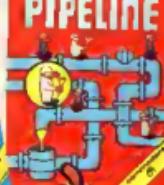
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